NATIONAL MILL SUPPLY, INC.

50th ANNIVERSARY CATALOG

FORT WAYNE AND SOUTH BEND
INDIANA

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Our Fiftieth Anniversary

CATALOG 56

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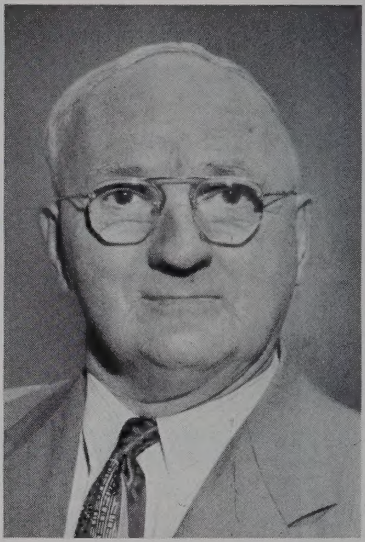
Vice President and Manager
Ft. Wayne Division



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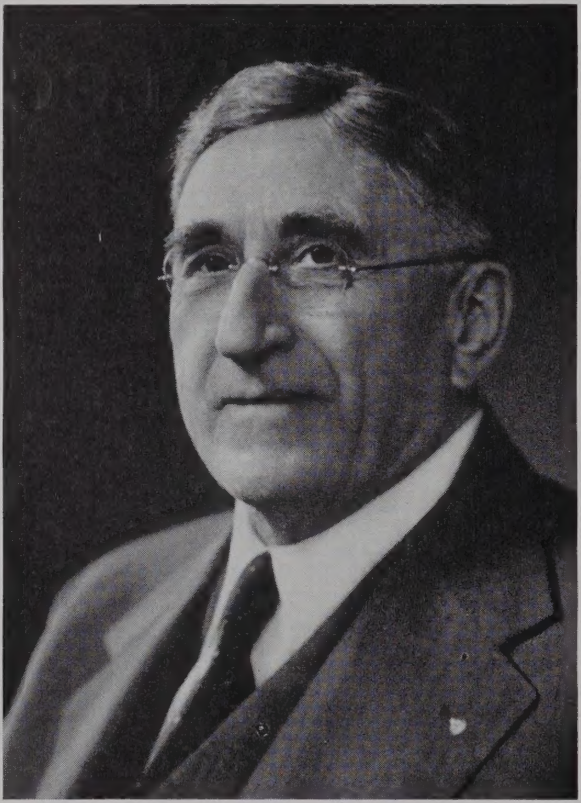

S. A. LEHMAN
President, General Manager and Founder

C. H. PIERSON
Vice-President and
Supervisor of Manufacturing

M. F. LEHMAN
Treasurer and Supervisor
South Bend Division

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A STORY OF PROGRESS— THE HISTORY OF OUR COMPANY

1904—Mr. S. A. Lehman started the National Mill Supply, a one man operation to sell thresher and sawmill supplies.

1905—Business incorporated as National Mill Supply Company, under the leadership of S. A. Lehman, treasurer and general manager, at 223 E. Columbia St.

1906—The present secretary, Mr. L. F. Lehman, became associated with the new Corporation.

1909—C. H. Pierson was employed by the company. Mr. Pierson is now vice-president.

1910—The Corporation moved to a new building at 209–211 East Columbia St.

1913—A large warehouse erected on property at 434 E. Superior St. to warehouse heavy merchandise.

1915—Purchased lot and buildings at 213 E. Columbia St.

1916—Purchased lot and buildings at 207 E. Columbia St.

1916—Entered the field as distributor of electric wiring devices and electrical equipment.

1918—Established a department to distribute auto accessories and garage equipment.

1922—Established a plumbing and heating supply division to service plumbing and heating contractors.

1925—Mr. S. A. Lehman elected as president and general manager, a position which he still holds.

1932—Arco Transformer & Electric Co. was acquired. This is a subsidiary of the company and manufactures coils, and transformers to customer's specifications.

1933—Established Appliance Division to serve electric appliance dealers in this territory.

1934—Realizing the necessity of better serving the fringe district North and West, formerly served by Fort Wayne, the Corporation organized the South Bend Branch, starting in a rented building at 131 E. Monroe St., South Bend.

1935—Moved the South Bend Branch to their own building at 224 E. Monroe St., South Bend.

1938—Established a Floor Covering Division to service dealers in Ft. Wayne territory.

1943—Organized another division as a subsidiary to be known as National Heat Treat Co., for hardening, tempering, liquid carburizing, etc., to customer's specifications.

1944—Organized another subsidiary, National Mfg. Co., specializing in manufacturing machine parts.

1945—Purchased five-floor building at 119–121 E. Columbia St., for additional warehouse facilities.

1945—Purchased building in South Bend, 1703 S. Main St. for warehouse. This building has its own side-track for loading and unloading.

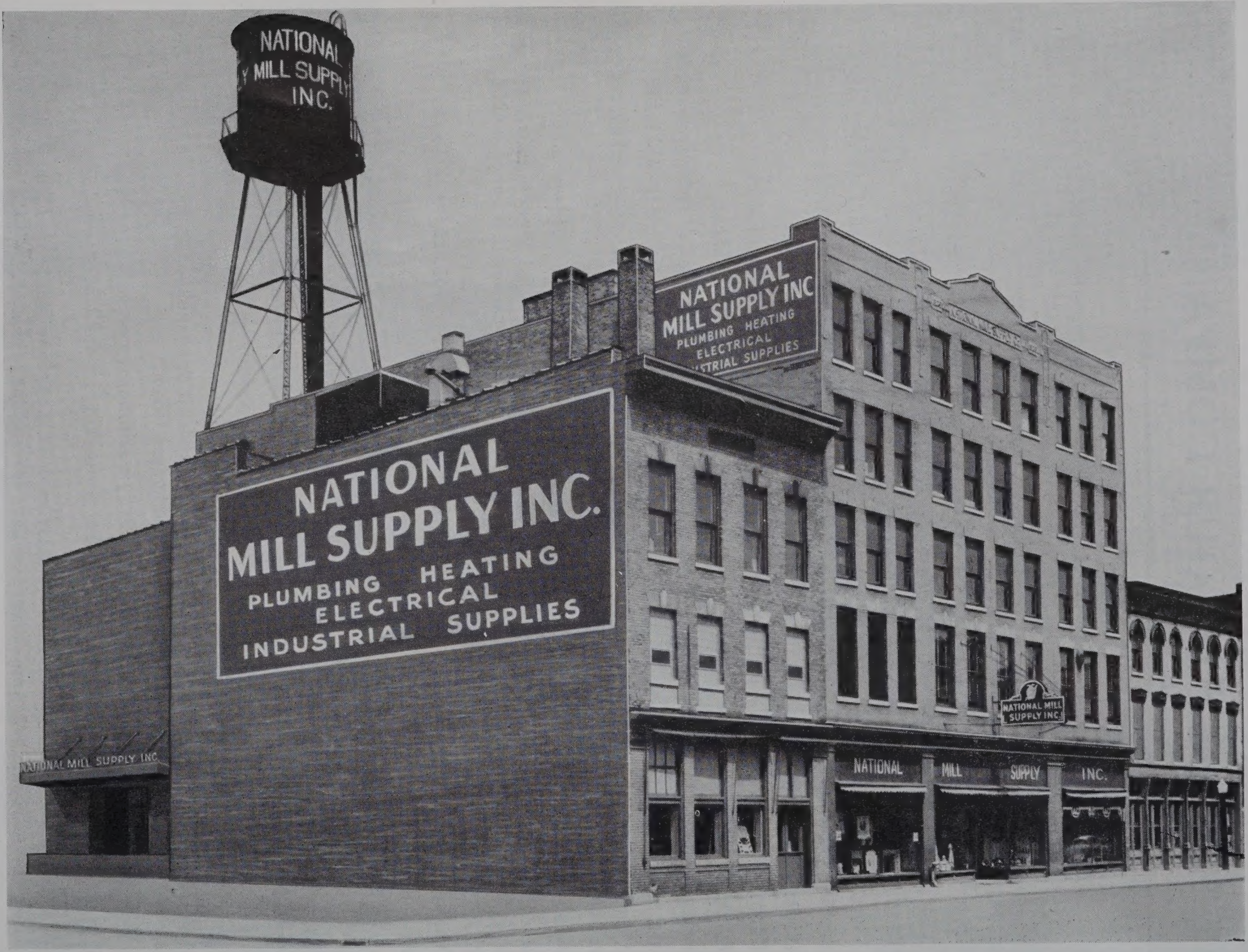
1951—Purchased building at 205 E. Columbia St., and remodeled this building for Electric Division, sales and stockroom, Office of the President and Conference Room.

1953—Purchased building at 231–235 E. Columbia St., for additional storage and parking.

1954—Purchased corner lot 201–203 E. Columbia St., for parking lot and loading dock.

National Mill Supply, Inc., has grown from 9 employees in 1905 to more than 500 in 1955. From the small beginning, to this year, our 50th Anniversary, we have become one of the largest distributors in Northern Indiana and we respectfully dedicate this catalog to the Founder and Organizers.

NATIONAL MILL SUPPLY, INC.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PROPERTY & BUILDINGS AT 201-217 E. COLUMBIA St., FORT WAYNE
ILLUSTRATION SHOWS NEW LOADING DOCK AND CUSTOMER PICK UP PARKING LOT

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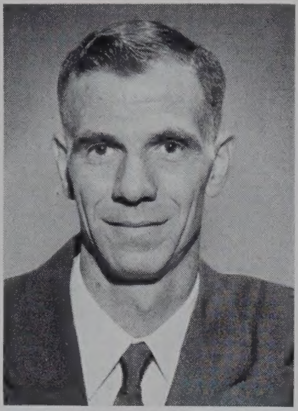
FORT WAYNE DIVISION

Telephone A2331 P.B.X. to All Departments



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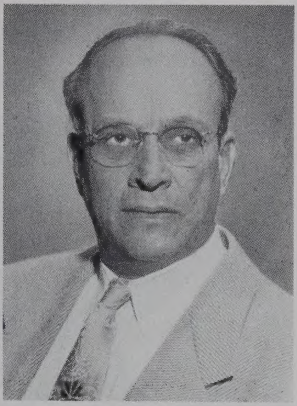

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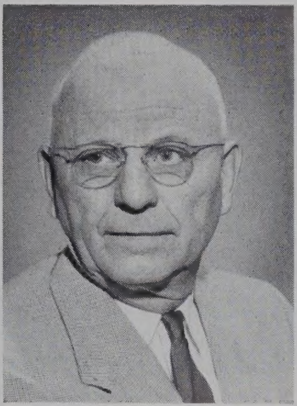

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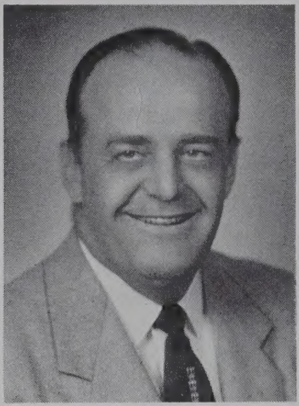
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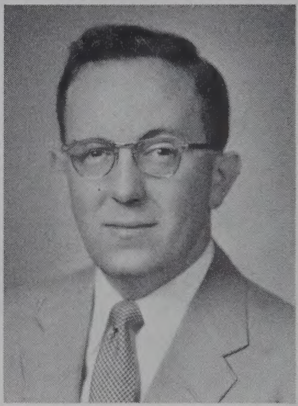
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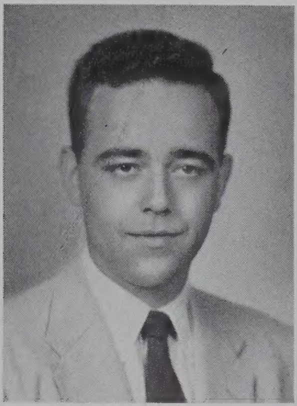
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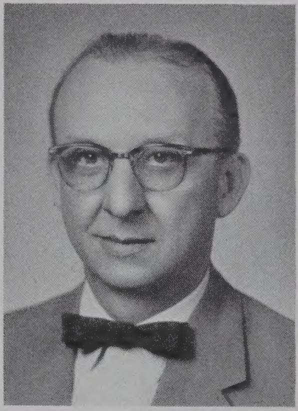
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The NATIONAL MILL SUPPLY INC.
CUSTOMERS ONLY PARKING

SOUTH BEND MONROE ST. STORE AND PARKING LOT

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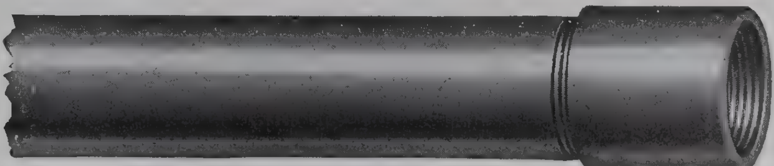
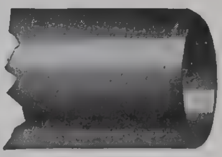
Lap-Weld, Continuous Weld, Butt-Weld or Seamless

With Plain Ends



With Threads and Couplings



With Beveled Ends

Standard

All Weights and Dimensions are Nominal

Size Inches	Black per Foot	Diameter, Inches External	Diameter, Inches Internal	Thickness Inches	Wt., Lb., per Ft. Plain End	Wt., Lb., per Ft. Threaded and Coupled	No. of Threads per Inch
1/8	....	.405	.269	.068	.24	.24	27
1/4	....	.540	.364	.088	.42	.42	18
3/8	....	.675	.493	.091	.57	.57	18
1/2	....	.840	.622	.109	.85	.85	14
3/4	....	1.050	.824	.113	1.13	1.13	14
1	....	1.315	1.049	.133	1.68	1.68	11½
1¼	....	1.660	1.380	.140	2.27	2.28	11½
1½	....	1.900	1.610	.145	2.72	2.73	11½
2	....	2.375	2.067	.154	3.65	3.68	11½
2½	....	2.875	2.469	.203	5.79	5.82	8
3	....	3.500	3.068	.216	7.58	7.62	8
3½	....	4.000	3.548	.226	9.11	9.20	8
4	....	4.500	4.026	.237	10.79	10.89	8
5	....	5.563	5.047	.258	14.62	14.81	8
6	....	6.625	6.065	.280	18.97	19.18	8
8	....	8.625	8.071	.277	24.70	25.55	8
8	....	8.625	7.981	.322	28.55	29.35	8
10	....	10.750	10.192	.279	31.20	32.75	8
10	....	10.750	10.136	.307	34.24	35.75	8
10	....	10.750	10.020	.365	40.48	41.85	8
12	....	12.750	12.090	.330	43.77	45.45	8
12	....	12.750	12.000	.375	49.56	51.15	8

The 8-inch and larger sizes, coupled, furnished in A.P.I. Line Pipe only.

The permissible variation in weight is 5 per cent above and 5 per cent below.

Average Number of Feet and Weight per Bundle

Size.......inches	1/8	1/4	3/8	1/2	3/4	1	1¼	1½
Pieces..........	30	24	18	12	7	5	3	3
Feet............	630	505	378	252	147	105	63	63
Weight...pounds	151	212	212	214	166	176	144	172

Trade Customs of Standard

Furnished with threads and couplings. Standard butt-welded pipe (sizes 1/8″ to 4″) is furnished usually in 21 foot uniform lengths. Standard pipe, seamless, (sizes 2″ to 6″) in random lengths (16′ to 22′ with 5% 12′ to 16′).

Plain ends or beveled ends for welding either 30° or with ends fitted especially for a specified coupler can be furnished.

Taper of threads is 3/4-inch per foot for all sizes.

Weight per foot of pipe with threads and couplings is based on a length of 20 feet overall, when coupling is pulled tight, but shipping lengths of small sizes will usually average less than 20 feet.

For pipe smoothed on the inside, known as reamed and drifted, an extra charge will be made above standard pipe.

On orders calling for commercial sizes of pipe which are finished with threads and couplings, in sizes 1/8 to 12-inch inclusive, and where orders specify quantity in linear feet, it is understood that random lengths fitted with threads both ends and coupling one end will be supplied and the measurement is charged overall, including coupling.

If cut lengths of any sizes are ordered, instructions must appear on the face of the order whether plain ends, threads only or threads and couplings are required. The pipe proper is cut to the length specified for plain ends or threads only, and if cut lengths with threads and couplings are specified, the practice is the same except that the couplings are charged separately whether shipped loose or screwed on the pipe.

Extra Strong

All Weights and Dimensions are Nominal

Size Inches	Black per Foot	Diameter, Inches External	Diameter, Inches Internal	Thickness Inches	Weight Pounds per Foot Plain Ends
1/8	....	.405	.215	.095	.31
1/4	....	.540	.302	.119	.54
3/8	....	.675	.423	.126	.74
1/2	....	.840	.546	.147	1.09
3/4	....	1.050	.742	.154	1.47
1	....	1.315	.957	.179	2.17
1¼	....	1.660	1.278	.191	3.00
1½	....	1.900	1.500	.200	3.63
2	....	2.375	1.939	.218	5.04
2½	....	2.875	2.323	.276	7.66
3	....	3.500	2.900	.300	10.25
3½	....	4.000	3.364	.318	12.51
4	....	4.500	3.826	.337	14.98
5	....	5.563	4.813	.375	20.78
6	....	6.625	5.761	.432	28.57
8	....	8.625	7.625	.500	43.39
10	....	10.750	9.750	.500	54.74
12	....	12.750	11.750	.500	65.42

Permissible variation in wt. is 5 per cent above or below.

Average Number of Feet and Weight per Bundle

Size.......inches	1/8	1/4	3/8	1/2	3/4	1	1¼	1½
Pieces..........	30	24	18	12	7	5	3	3
Feet............	630	505	378	252	147	105	63	63
Weight...pounds	195	268	276	272	216	228	188	229

Double Extra Strong

All Weights and Dimensions are Nominal

Size Inches	Black per Foot	Diameter, Inches External	Diameter, Inches Internal	Thickness Inches	Weight Pounds per Foot Plain Ends
1/2	....	.840	.252	.294	1.71
3/4	....	1.050	.434	.308	2.44
1	....	1.315	.599	.358	3.66
1¼	....	1.660	.896	.382	5.21
1½	....	1.900	1.100	.400	6.41
2	....	2.375	1.503	.436	9.03
2½	....	2.875	1.771	.552	13.70
3	....	3.500	2.300	.600	18.58
4	....	4.500	3.152	.674	27.54
5	....	5.563	4.063	.750	38.55
6	....	6.625	4.897	.864	53.16
8	....	8.625	6.875	.875	72.42

Permissible variation in wt. is 10 per cent above or below.

Average Number of Feet and Weight per Bundle

Size....................inches	1/2	3/4	1	1¼	1½
Pieces......................	7	5	3	3	3
Feet........................	147	105	63	63	63
Weight................pounds	251	256	231	329	403

Trade Customs of Extra Strong and Double Extra Strong

Furnished with plain ends and in random lengths.

Extra Strong pipe, butt-welded, (sizes 1/8″ to 4″) is usually furnished in 21 foot uniform lengths.

Beveled ends for welding either 30° or with ends fitted especially for a specified coupler can be furnished.

For pipe fitted with threads only or with threads and couplings, an extra charge will be made above plain ends.

Extra Strong pipe, seamless (2″ to 12″) is furnished random lengths (12′ to 22′ with 5% 6′ to 12′).

Double Extra Strong Pipe is all seamless (sizes 2″ to 8″) and is furnished in random lengths (12′ to 22′ with 5% 6′ to 12′).

For cut lengths, an extra charge will be made above random.

For galvanized, coated, or copper bearing steel pipe, an extra charge will be made above black.

Seamless or copper bearing steel pipe available in all of the above weights and dimensions.

Plastex Measure-Marked Non-Corrosive Pipe

Recommended for transmission of most corrosive liquids in either surface or buried applications, and also for low pressure natural gas and air.

Not subject to rot, rust, or electrolytic corrosion, and is flexible to —50°F. The smooth internal surface has a low friction loss, delivering up to 40 per cent more liquid than steel pipe. Scale, paraffin or other resinous substances will not adhere to inner walls so that maximum flow is maintained at all times.

Recommended for working pressures up to 40 per cent of calculated bursting pressures at temperatures not exceeding 120°F.

Flexible pipe is joined by using insert type couplings which fit snugly inside the pipe and are secured by metal strap clamps which are quickly tightened with a screwdriver. Insert thread adapter is inserted in same way when making connections to threaded plastic or metal fittings. Will not form a galvanic couple.

Coils and straight lengths other than standard are available on special order.

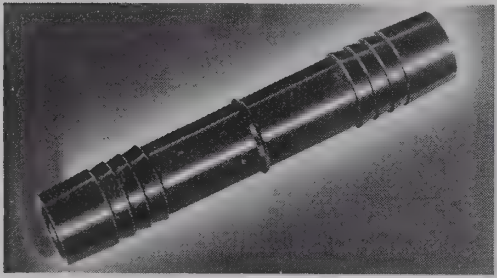
Measure-Marked. Pipe adapts itself readily and is perfect for use in the installation of domestic water, farm pump and distribution systems and is fully recommended for the transmission of most corrosive liquids. Low pressure air and natural gas can be transported if gas is free from liquid oil or gasoline condensation. Accurate markings on pipe into 10-foot lengths makes cutting for proper lengths easier. Will not be affected by rust, rot or corrosion. Flexibility is maintained in temperatures from minus 50°F. to plus 140°F. Internal resiliency eliminates damage from freezing of liquids.

Yellow Mine. A tough, durable type of flexible pipe for handling corrosive wastes, sewage or water not intended for human consumption. Pipe will fairly glow in dark mine passages, eliminating risk of damage caused by poor visibility.

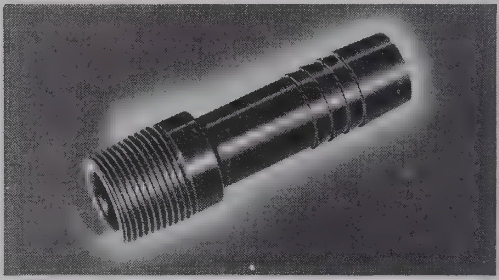
Nom. Pipe Size Inches	Measure Marked per 100 Foot	Yellow Mine per 100 Foot	O.D. Inches	I.D. Inches	Calculated Bursting Press. PSI.	Max. Cont. Wrk. Press. 73.4°F.	Packing Std. Coils Feet	Wt. Lb. per 100 Ft.
½	**$10.85**	**$9.36**	.840	.622	540	104	100 or 400	11.2
¾	**14.02**	**12.56**	1.050	.824	350	86	100 or 400	14.1
1	**20.67**	**18.89**	1.315	1.050	200	81	100 or 300	19.6
1¼	**28.16**	**26.45**	1.660	1.380	200	68	100 or 300	26.6
1½	**33.55**	**31.51**	1.900	1.610	200	61	100 or 250	35.7
2	**49.15**	**42.58**	2.375	2.067	170	52	200	43.4
3	**98.27**	**88.45**	3.500	3.068	165	51	100	89.9
4	**136.36**	**113.64**	4.500	4.026	150	49	*25	127.0
6	**254.55**	**218.18**	6.625	6.065	115	31	*25	240.0

*Furnished in straight lengths only.

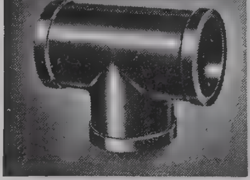
Fittings and Connections for Plastex Pipe



Insert Coupling



Insert Thread Adapter



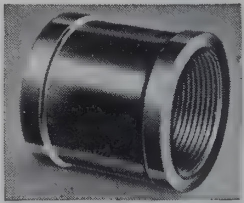
Threaded Tee

Tough and resilient; internal design allows for unrestricted flow of liquids. Made of virgin material, warranted non-toxic. Threaded fittings and adapters with I.P.S. thread connects plastic or metal pipe installations. Insert type fittings are used on flexible pipe connections; secured by metal clamps.

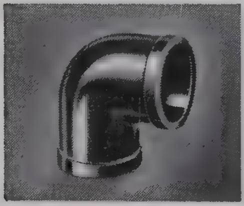
Insert Coupling. A serrated fitting for inserting into Measure-Marked pipe. For connecting pipe to pipe. Supplied with necessary clamps.

Insert Thread Adapter. One end serrated for inserting Measure-Marked pipe, and the other end threaded (male) for connecting to any standard threaded fixture. Supplied with necessary clamp.

Threaded Tee, Elbow and Coupling. Same as similar named metal pipe fittings except of plastic material. A threaded coupling screwed to any adapter will make a female threaded adapter.



Threaded Coupling

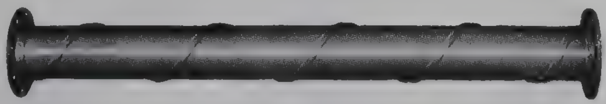


Threaded Elbow

Size In.	Insert Coupling Each	Insert Thread Adapter Each	Insert Tee Each	Threaded Tee Each	Insert Ell Each	Threaded Ell Each	Threaded Coupling Each	Clamps Each
½	$.25	$.23	$.31	$.26	$.33	$.24	$.23	$.27
¾	.32	.28	.40	.28	.38	.26	.24	.27
1	.39	.35	.52	.46	.41	.39	.33	.28
1¼	.48	.45	.65	.59	.52	.53	.40	.28
1½	.54	.54	.89	.77	.71	.67	.47	.29
2	.73	.71	1.24	.98	.97	.84	.55	.29
3	2.42	2.07	3.62	5.39	2.69	5.00	3.42	.39
4	3.88	3.24	....	9.05	....	8.40	4.04	.43
6	4.98	4.65	....	13.64	....	13.46	5.64	.50

Extra Strap Clamp

Naylor Lock-Seam Spiralweld Pipe



A lightweight steel pressure pipe which has great structural strength.

Made in sizes from 4 inches to 30 inches in diameter; in thickness from No. 14 gage to No. 8 gage; lengths to 40 feet if black mill coated, or to 20 feet if galvanized.

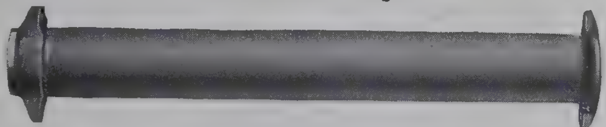
Furnished with all types of connections including the Naylor Wedgelock Couplings; all types of standard and special fittings and fabricated piping available.

Descriptive bulletins giving additional information on the Naylor Pipe structure and its application in industry will be furnished upon request.

Type T Universal Cast Iron Pipe

2 to 30-Inch Diameter—with Fittings

6-Foot Standard Lengths



Universal Cast Iron Pipe is manufactured for water supply, fire protection systems, sewage disposal systems and gas lines. Also successfully employed for oil condenser coils.

Universal Pipe is cast in sand molds, is made in standard 6-foot lengths, and has a machined iron-to-iron joint. The design of the joint and its accurate machining provide for the laying of the pipe out of line, and permit contraction, expansion and deflection of the pipe without leakage. Requires no lead, lead substitutes, or caulking. A ratchet wrench is the only field equipment required to make a cast iron bolted joint.

Lugs at each end are cast as an integral part of the pipe. Machined surfaces of the joint are properly brought together by tightening bolts which are inserted in the lugs.

All pipe is tested with hydrostatic pressure. Pipe will be tarred unless otherwise ordered. Pipe for gas service furnished plain and air tested.

	150-Pound Working Pressure			250-Pound Working Pressure		
Nominal Inside Diameter Inches	Thickness Inches	Wt. Lb. per Foot	Wt. Lb. per Length	Thickness Inches	Wt. Lb. per Foot	Wt. Lb. per Length
2	.25	7	42	.31	8	48
3	.30	11¼	67½	.34	12½	75
4	.31	16	96	.37	18	108
6	.36	26⅗	160	.43	30	180
8	.39	38½	231	.47	44¼	265½
10	.41	49¼	295½	.50	60½	363

Also made in diameters up to 30 inches.

This pipe is also manufactured in heavier weights for high pressure fire protection lines. Weights and measurements of the high pressure pipe and fittings furnished on request.

When making inquiries state class, size, and quantity of pipe. Also give the maximum pressures and the service for which pipe is required.

Fittings for Cast Iron Water Pipe

Your requirements will be taken care of promptly and satisfactorily.

Cast Iron Water Pipe

Class 150: 150 Pounds Working Pressure; 346-Foot Head
Class 200: 200 Pounds Working Pressure; 462-Foot Head
Class 250: 250 Pounds Working Pressure; 576-Foot Head

Class 150 and Class 250 cast iron water pipe meet *Federal Specification WW-P-421.

Pipe sizes 3 to 12 inches use Class D fittings. Pipe sizes 14 to 24 inches use Class B or D fittings (depending on the outside diameter of the pipe).

A.W.W.A. Class A body pattern covers pipe sizes 4 to 12 inches, A.W.W.A. Class C-D body pattern covers pipe sizes 14 to 24 inches. Class A-B body pattern can also be furnished in the 14 to 24-inch pipe sizes.

In following table of sizes, dimensions and weights, weight of pipe is to nearest 5 pounds and weight of pipe per foot including bell is based on weight of pipe to nearest pound.

Sizes, Dimensions and Weights

Class 150

			Weight, Pounds		
Nominal I.D. Inches	Actual O.D. Inches	Thickness Inches	Plain End per Foot	With Bell per Foot	16-Foot Length
4	4.80	.34	15	16.1	255
6	6.90	.37	24	25.7	410
8	9.05	.42	36	38.6	615
10	11.10	.47	49	52.2	835
12	13.20	.50	62	66.1	1055
14	15.65	.55	82	86.9	1390
16	17.80	.60	102	108.1	1730
18	19.92	.65	123	130.4	2085
20	22.06	.68	143	152.0	2430
24	26.32	.76	191	202.9	3245

Class 200

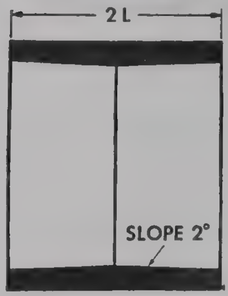
			Weight, Pounds		
Nominal I.D. Inches	Actual O.D. Inches	Thickness Inches	Plain End per Foot	With Bell per Foot	16-Foot Length
8	9.05	.46	39	41.6	665
10	11.10	.52	54	57.2	915
12	13.20	.57	70	74.1	1185
14	15.65	.62	91	97.0	1550
16	17.80	.68	114	121.6	1945
18	19.92	.74	139	147.9	2365
20	22.06	.78	163	173.6	2775
24	26.32	.88	219	233.1	3730

Class 250

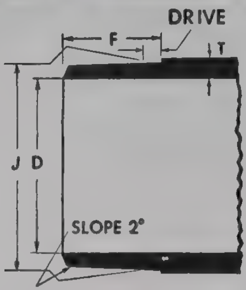
			Weight, Pounds		
Nominal I.D. Inches	Actual O.D. Inches	Thickness Inches	Plain End per Foot	With Bell per Foot	16-Foot Length
†3	.....	.36	12.7	13.8	220
4	4.80	.38	17	18.1	290
6	6.90	.43	27	28.7	460
8	9.05	.50	42	44.6	715
10	11.10	.57	59	62.3	995
12	13.20	.62	77	81.1	1300
14	15.65	.69	102	108.0	1730
16	17.80	.75	126	133.6	2135
18	19.92	.83	156	164.9	2640
20	22.06	.88	183	193.6	3095
24	26.32	1.00	248	262.1	4195

*Includes sizes 4 to 24 inches, Classes 150 and 250 only.
†The 3-inch inside diameter is Manufacturer's Standard.

Bermico Sewer Pipe



Coupling



Tapered Sleeve Joint

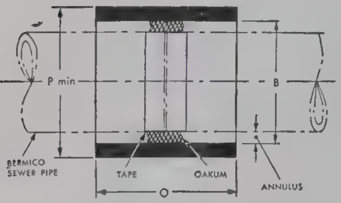
For house connections to sewers or septic tanks, low-head irrigation conductor pipe, leaders for stock-watering on farms or ranches, salt water disposal in oil well country, industrial waste drainage, and protective covering for other underground pipe.

Chemically pure wood fiber and inert coal tar pitch are used. Tree roots cannot penetrate. Not affected by sewerage or acids and alkalies in cinder fill or corrosive soil.

Standard length, 8 feet. Coupling precision milled for tight, accurate fit; one furnished with each pipe length.

Size	inches	3	4	5	6
Dimension D Min.	inches	3.00	4.00	5.00	6.00
Dimension J	inches	3.448	4.493	5.726	6.782
Dimension F	inches	1.69	1.94	1.94	1.94
Dimension 2L	inches	3.50	4.00	4.00	4.00
Dimension T Min.	inches	0.28	0.32	0.41	0.46
Drive	inches	.28	.28	.28	.28

Bermico Joining Sleeves



For joining two untooled ends of Bermico sewer pipe—or for joining untooled end of Bermico sewer pipe to spigot end of cast iron soil pipe.

Annulus may be packed, cemented, or hot poured to make a sealed joint.

Size	inches	3	4	5	6
Dimension P Min.	inches	5.33	6.66	7.80	9.31
Dimension B	inches	4.40	5.45	6.72	8.10
Dimension O	inches	5.0	6.0	6.0	6.0
Annulus (Approx.)	inches	.34	.34	.34	.45

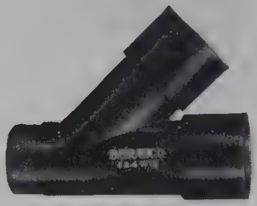
Cross-Over Section

Bermico Fittings

No. C-21⅛ Bend

No. C-22¼ Bend

No. C-19 Tee



No. C-20 Wye

Made from wood fiber, impregnated with pitch. Have tight, accurate fit. Root proof, water-right, resistant to acids and alkalies.

Meet requirements of Commercial Standards CS 116-54 of the National Bureau of Standards and Federal Spec. SS-P-356.

No. C-19 Tees. Used to connect right angle laterals and branches.

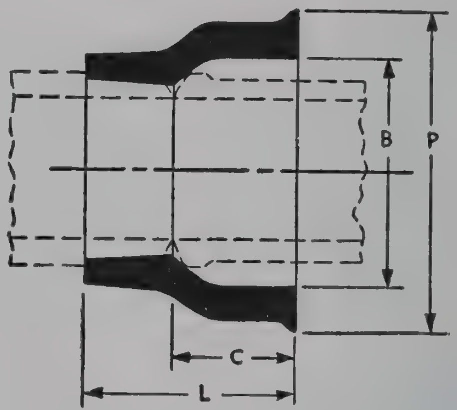
No. C-20 Wye. Used where a branch connection is desired.

No. C-21 ⅛ Bena. Used for making 45 degree turns.

No. C-22 ¼ Bend. Used for making 90 degree turns.

Also available untooled for perforated pipe.

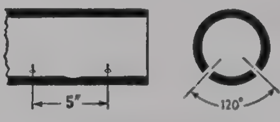
Bermico Adapters



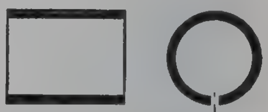
From tooled end of sewer pipe to spigot end of cast iron soil pipe. Also available with spigot end of clay pipe.

Size	inches	3	4	5	6
Dimension P Min.	inches	5.125	6.625	7.625	8.625
Dimension B	inches	4.188	5.188	6.188	7.188
Dimension C	inches	2.50	2.75	2.75	3
Dimension L	inches	4.25	4.75	4.75	5

Bermico Perforated Pipe



Perforated Pipe

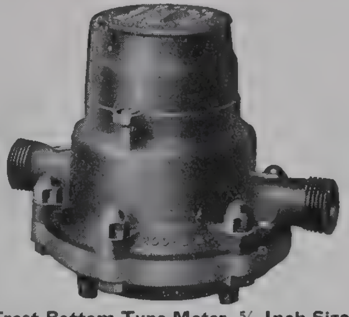


Snap Coupling

For disposing of liquids, as from septic tank, or picking up and carrying away water, as in marsh drainage.

Perforated pipe in 8-ft. lengths, plain ends. Two rows of ½-inch holes separated by 120° punched longitudinally in pipe. Loose fit snap coupling with each length pipe unless otherwise specified; facilitates joining, keeps out dirt.

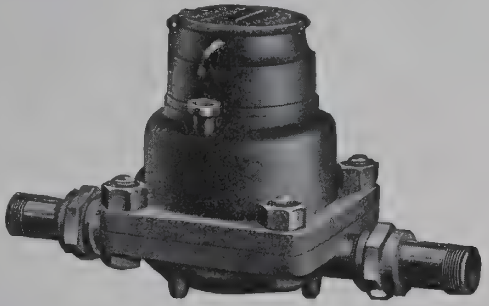
Niagara Water Meters



Frost Bottom Type Meter, ⅝-Inch Size

Niagara Water Meters are first quality, full size meters, built to measure cold water with maximum accuracy. They are of the standard disc type, with many exclusive features of design which contribute to successful performance. They are unusually easy and inexpensive to maintain in service and are very easy to assemble or disassemble.

Measuring disc is hard rubber, precision machined and reinforced with aluminum alloy plate to withstand hardest service. Measuring chamber halves are interchangeable and are available separately for repair.



Solid Casing Type Meter, ⅝-Inch Size with Couplings

Most meters are built with internal gear train of chromium shell type, water-lubricated, which is wear-resistant, corrosion-resistant, sanitary and simple. Bearings are enclosed against dirt. Where excessive deposit might build up inside casing, or where gears are to be kept out of water stream, oil-enclosed type is used. This has gears in separate chamber containing waterproof semi-fluid graphite grease.

Outer casing is made of galvanized cast iron. When measuring hard water, the casing protects the bronze works from most corrosion. When meter is exposed to freezing, use the frost bottom construction. Bottom casing is made so if ice pressure reaches 500–550 pounds, bottom breaks, relieving all strain. All interior parts including gear train parts can separate to avoid ice damage. Breaking pressure is not affected by tightening of flange bolts.

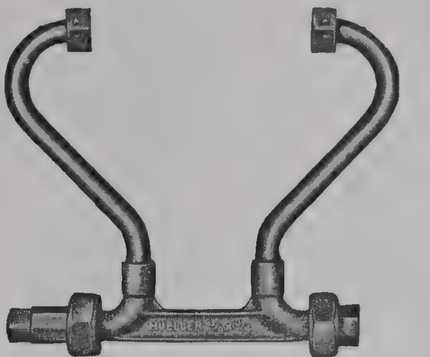
Meters are individually tested for accuracy and pressure tightness. Sizes up to and including 2 inches are made with external threads for bronze meter union couplings; 2½ to 6-inch meters are flanged, with companion flanges included.

Size Inches	Delivery U.S. Gal. per Minute	Chromium-Shell Gears Frost Bottom Type Each	Chromium-Shell Gears Solid Casing Type Each	Oil Enclosed Gears Frost Bottom Type Each	Oil Enclosed Gears Solid Casing Type Each	Couplings Extra per Pair	Ship Wt., Lb. with Coupling
⅝x ½	20	$24.00	$24.00	$25.00	$25.00	$1.20	12
⅝x ¾	20	24.00	24.00	25.00	25.00	1.60	13
¾	30	36.00	36.00	37.00	37.00	1.60	18
1	50	52.80	52.80	54.80	54.80	3.30	29
1 x1¼	50	.....	52.80	.....	54.80	4.50	30
1¼	75	.....	72.00	.....	74.00	4.50	38
1 x1½	75	.....	72.00	.....	74.00	6.00	40
1½	100	.....	96.00	.....	98.00	6.00	50
2	160	.....	144.00	.....	146.00	9.00	80
2½	225	.....	240.00	.....	....	No	160
3	300	.....	300.00	.....	....	Extra	182
*3	360	.....	360.00	.....	362.00	Charge	254
*4	500	.....	520.00	.....	512.00	for	480
*6	1000	.....	1020.00	.....	1022.00	Flanges	780

Elevated dial extension available at $6.00 per first foot, and 75 cents per additional foot or fraction.

*Heavy duty type.

No. 14020 Mueller Copper Water Meter Yokes without Stops



Iron-Pipe Inlet and Outlet

Regularly furnished with horizontal bronze ground joint union connections.

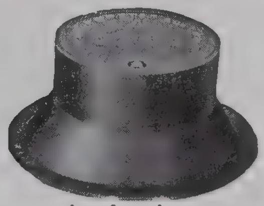
Inlet, outside I.P. thread.

Outlet, inside I.P. thread.

Specify size of meter and height of yoke when ordering.

No. H14020

No. W3 Wabash Double Lid Meter Box Covers



Provides frost protection for pit meters. Extra depth, 9½ inches, sloping skirt and 4-inch dead air space provided by inner lid, reduce to a minimum heat loss from top of setting. Made of gray cast iron, painted black.

Standard weight covers are strong enough for ordinary service, and the extra heavy are for street traffic.

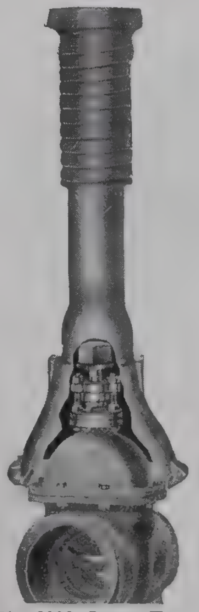
Has 11½-inch diameter lid opening. For use in 20-inch inside diameter tile. Fitted with lifter worm lock.

No. W 3......................................each	**$13.00**
No. W 3H, Extra Heavy.......................each	**19.00**

Extension Valve Boxes and Parts

Three Piece Valve Boxes with 5¼-Inch Shafts

No. 3002, Screw Type—No. 3102, Slip Type



No. 3002, Screw Type

Size	Complete Each	Top & Cover Each	Bottom Each	Extension In.
AAA	$6.00	$3.50	....	*17
AA	7.25	3.00	$1.75	26–30
A	7.90	3.50	1.90	33–42
B	8.20	3.50	2.20	36–48
C	8.50	3.50	2.50	45–54
CC	9.00	3.50	3.00	51–60
D	9.45	4.45	2.50	45–66
E	10.00	3.50	4.00	63–72
F	10.95	4.45	4.00	63–84
G	11.90	4.45	4.95	75–96

*Stationary.

Drop covers marked Water furnished unless otherwise specified.

Above prices are with No. 6 round base which is regularly furnished.

Base No.	Each	Shape of Base	Size Valve In.	Ht. In.
4	$2.00	Round	6 or Smaller	8
6	2.50	Rd. or Oval	8 or Smaller	11
8	3.50	Round	12 or Smaller	11
140	2.50	Dome	24 or Smaller	5
160	3.50	Oval	16 or Smaller	9½
162	6.00	Oval	20 or Smaller	10
16	8.50	Rd. or Oval	16 or Smaller	15

For valve boxes with any of the above bases, add or deduct difference in price as compared with No. 6 base.

5¼-Inch Valve Box Extension Sections

No. 58, Screw Type, No. 58A Slip Type, Increasing Length, 14 Inches..........................each **$1.75**

Valve Box Covers

Drop Cover

Drop Covers.............each	$.88
Drop Lock Covers........each	1.25
Flange Covers...........each	1.00

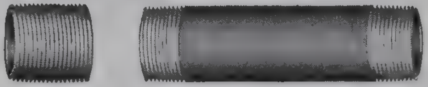
Flange Cover

Steel Pipe Nipples

Black or Galvanized—Welded and Seamless

Standard—Extra Heavy—Double Extra Heavy

Right-Hand Threads



Prices apply to all welded steel pipe nipples, seamless steel pipe nipples and seamless steel pressure tube nipples in black or galvanized—standard, extra heavy and double extra heavy weights.

Pipe Size Inches	Close Lgth. In.	Close Each	Length, Inches 1½ Each	2 Each	2½ Each	3 Each	3½ Each	4 Each	4½ Each	5 Each	5½ Each	6 Each	7 Each	8 Each	9 Each	10 Each	11 Each	12 Each
⅛	¾	$.24	$.25	$.26	$.27	$.30	$.33	$.36	$.39	$.43	$.46	$.49	$.58	$.64	$.70	$.75	$.80	$.86
¼	⅞	.24	.25	.26	.27	.30	.33	.36	.39	.43	.46	.49	.58	.64	.70	.75	.80	.86
⅜	1	.24	.25	.26	.27	.30	.33	.36	.39	.43	.46	.49	.58	.64	.70	.75	.80	.86
½	1⅛	.24	.25	.26	.27	.30	.33	.36	.39	.43	.46	.49	.67	.73	.79	.87	.93	1.00
¾	1⅜	.31	...	.33	.35	.39	.43	.47	.51	.55	.59	.63	.83	.92	1.01	1.09	1.18	1.26
1	1½	.46	...	.49	.52	.54	.59	.64	.70	.76	.82	.88	1.17	1.29	1.40	1.52	1.64	1.76
1¼	1⅝	.61	...	.63	.66	.69	.76	.84	.91	.99	1.06	1.13	1.49	1.64	1.78	1.94	2.10	2.26
1½	1¾	.72	...	.75	.78	.81	.90	1.00	1.09	1.18	1.27	1.36	1.73	1.92	2.10	2.30	2.48	2.67
2	2	.96	...	...	1.02	1.09	1.18	1.29	1.40	1.51	1.65	1.80	2.25	2.50	2.75	3.00	3.25	3.50
2½	2½	2.25	...	...	....	2.45	2.55	2.70	2.90	3.05	3.20	3.40	3.70	4.10	4.50	4.90	5.30	5.70
3	2⅝	2.80	...	...	....	3.00	3.20	3.30	3.55	3.75	4.00	4.20	4.70	5.20	5.70	6.20	6.70	7.20
3½	2¾	4.00	...	...	....	....	....	4.30	4.40	4.70	5.10	5.50	6.20	6.80	7.50	8.10	8.80	9.50
4	2⅞	4.20	...	...	....	....	....	4.90	5.15	5.40	5.80	6.20	7.00	7.80	8.60	9.40	10.20	11.00
5	3	15.00	...	...	....	....	....	....	15.50	16.00	16.75	17.50	18.25	19.50	20.50	21.75	23.00	24.00
6	3⅛	18.00	...	...	....	....	....	....	19.00	19.50	20.25	21.00	22.75	24.00	25.25	26.50	27.75	29.00
8	3½	38.00	...	...	....	....	....	....	.....	39.00	40.00	41.00	44.00	46.00	49.00	52.00	54.00	57.00
10	3⅞	50.00	...	...	....	....	....	....	.....	51.00	53.00	55.00	58.00	62.00	66.00	70.00	74.00	77.00
12	4½	64.00	...	...	....	....	....	....	.....	.....	.....	71.00	77.00	82.00	87.00	92.00	98.00	104.00

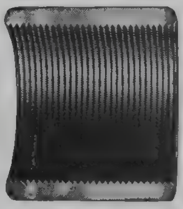
NOTE: To determine prices of nipples over 6 inches long and less than 12 inches long, not shown above, use price shown for next longer lengths.

Prices for nipples over 12 inches long and any lengths not shown above or as noted—furnished upon application.

Wrought Pipe Couplings

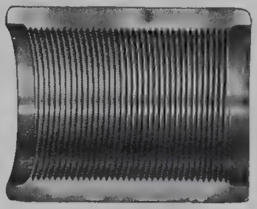
Right Hand

Standard



No. 713

Heavy Recessed



No. 716

Size Inches	Black Each	Galvanized Each
⅛	$.05	$.07
¼	.06	.08
⅜	.07	.09
½	.10	.12
¾	.14	.17
1	.20	.25
1¼	.25	.30
1½	.35	.40
2	.50	.65
2½	1.05	1.30
3	1.60	2.00
3½	2.10	2.50
4	2.40	3.00
5	5.00	5.75
6	5.75	7.00
8	....	....
10	....	....
12	....	....

Size Inches	Black Each	Galvanized Each
⅛	....	....
¼	$.25	$.27
⅜	.27	.30
½	.42	.52
¾	.45	.55
1	.65	.80
1¼	.70	.85
1½	.75	.90
2	1.20	1.50
2½	2.00	2.35
3	2.35	2.75
3½	3.25	3.75
4	4.00	4.60
5	6.00	7.25
6	6.75	8.00
8	15.00	18.00
10	25.00	30.00
12	30.00	35.00

Style 38 Dresser Steel Pipe Couplings

For Steel Pipe Sizes ⅜-Inch I.D. to 24-Inch O.D. and Larger

Resilient gasket seal. Makes a permanently tight, flexible connection between sections of plain-end pipe.

For high and low pressures, on gas, water, air, oil and sewage lines.

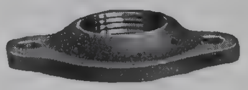
Coupling is made up of middle ring, two followers, two resilient gaskets and a number of bolts. All metal parts are steel.

Regular and special sizes supplied. Also CIP and light wall pipe sizes.

Gaskets are supplied in accordance with service (gas, water, oil, etc.). Specify service when ordering.

Further information and prices upon application.

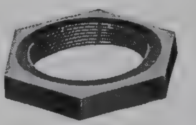
Standard Malleable Iron Waste Nuts



No. 126

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
⅛	$.15	$.19	1	$.22	$.29
¼	.15	.19	1¼	.28	.36
⅜	.15	.19	1½	.37	.48
½	.17	.22	2	.70	.88
¾	.19	.25	...	...	...

Standard Malleable Iron Lock Nuts



No. 127

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
⅛	$.07	$.09	1	$.14	$.18
¼	.07	.09	1¼	.18	.23
⅜	.07	.09	1½	.25	.32
½	.09	.11	2	.42	.55
¾	.11	.14	...	...	...

Standard 90° Malleable Iron Elbows

No. 101

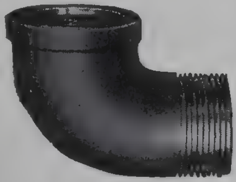
	Straight		Reducing	
Size Inches	Black Each	Galv. Each	Black Each	Galv. Each
⅛	$.16	$.21	....	....
¼	.16	.21	$.19	$.25
⅜	.16	.21	.19	.25
½	.20	.26	.22	.29
¾	.25	.33	.27	.37
1	.32	.42	.35	.45
1¼	.50	.66	.57	.76
1½	.68	.88	.72	.97
2	.97	1.25	1.05	1.35
2½	1.85	2.40	2.00	2.60
3	2.95	3.85	3.25	4.25
3½	3.65	4.75	....	....
4	5.00	6.50	5.50	7.20
5	11.50	15.00	....	....
6	14.50	19.00	....	....

Standard 45° Malleable Iron Elbows

No. 102

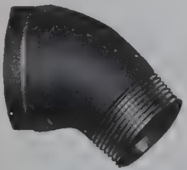
Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
⅛	$.19	$.25	2	$1.05	$1.35
¼	.19	.25	2½	2.05	2.65
⅜	.19	.25	3	3.30	4.30
½	.21	.28	3½	4.00	5.00
¾	.29	.40	4	5.30	6.65
1	.35	.46	5	13.00	17.00
1¼	.60	.80	6	16.00	21.00
1½	.75	.95	...	.....	.....

Standard 90° Malleable Iron Street Elbows


No. 103

	Straight		Reducing	
Size Inches	Black Each	Galv. Each	Black Each	Galv. Each
⅛	$.22	$.29	....	....
¼	.22	.29	....	....
⅜	.22	.29	....	....
½	.26	.34	$.28	$.37
¾	.37	.48	.41	.53
1	.43	.54	.46	.62
1¼	.65	.84	.68	.91
1½	.80	1.05	.86	1.10
2	1.20	1.55	1.35	1.75
2½	2.10	2.75	....	....
3	3.25	4.25	....	....
4	5.30	7.00	....	....

45° Malleable Street Elbows


No. 104

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
⅛	$.24	$.31	1	$.48	$.64
¼	.24	.31	1¼	.72	.96
⅜	.24	.31	1½	.90	1.15
½	.28	.35	2	1.35	1.75
¾	.41	.51	...	....	....

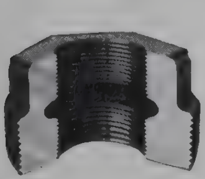
Standard Malleable Iron Caps

Plain or Banded

No. 125
*Banded only.

Size Inches	Black Each	Galv. Each	Size Inches	Black Each	Galv Each
¼	$.11	$.15	2	$.53	$.66
⅜	.11	.15	*2½	.94	1.20
½	.14	.18	*3	1.30	1.75
¾	.19	.25	*3½	2.00	2.70
1	.23	.30	*4	2.35	3.05
1¼	.30	.40	*5	4.20	5.50
1½	.41	.53	*6	8.00	10.50

No. 184 Morrison Double Tapped Bushings

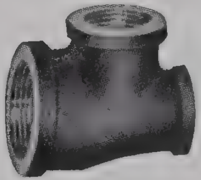


Cast iron. Used in making connection at underground storage tanks.

Size, In.	Each	Size, In.	Each
3 x1½	$1.20	3½x2	$1.38
3 x2	1.20	3½x3	1.80
3½x ¾	1.38	4 x1¼	1.80
3½x1	1.38	4 x1½	1.80
3½x1¼	1.38	4 x2	1.80
3½x1½	1.38	....	....

Standard Malleable Iron Tees

No. 110, Straight


No. 111, Reducing

	No. 110, Straight		No. 111, Reducing	
Size In.	Black Each	Galv. Each	Black Each	Galv. Each
⅛	$.22	$.28	...	...
¼	.22	.28	$.24	$.31
⅜	.22	.28	.24	.31
½	.28	.36	.31	.40
¾	.37	.48	.41	.53
1	.47	.64	.53	.70
1¼	.78	1.00	.85	1.10
1½	.96	1.25	1.00	1.35
2	1.40	1.80	1.55	1.95
2½	2.45	3.20	2.70	3.50
3	3.30	4.15	3.60	4.75
3½	5.60	7.30	....	....
4	6.60	8.60	7.30	9.50
5	13.00	17.00	....	....
6	18.50	24.00	20.00	26.00

Standard Malleable Iron Service Tees

No. 115

Straight

Size In.	Black Each	Galv. Each
¼	$.28	$.36
⅜	.28	.36
½	.36	.47
¾	.44	.59
1	.59	.79
1¼	.93	1.20
1½	1.25	1.60
2	1.85	2.40

Reducing

Size In.	Black Each	Galv. Each
1	$.67	$.90
1¼	1.00	1.35
1½	1.35	1.75
2	1.95	2.65

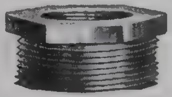
Standard Malleable Iron Crosses

Straight

No. 116

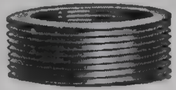
Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
⅛	$.43	$.56	2	$2.30	$3.00
¼	.43	.56	2½	3.70	4.80
⅜	.43	.56	3	5.50	7.10
½	.53	.71	3½	8.50	11.25
¾	.65	.85	4	10.00	13.00
1	.80	1.05	5	21.00	26.50
1¼	1.10	1.45	6	29.00	39.00
1½	1.40	1.80	...	.....	.....

Malleable Hexagon Bushings


No. 135

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
*¼	$.12	$.18	1¼	$.21	$.32
*⅜	.12	.18	1½	.25	.38
½	.13	.20	2	.30	.45
¾	.15	.22	2½	.42	.63
1	.17	.26	...	...	...

Faced Bushings


No. 136

*Made of steel. Other sizes are malleable.

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
*¼	$.18	$.27	2½	$.80	$1.20
*⅜	.18	.27	3	1.05	1.60
*½	.20	.30	3½	1.75	2.65
*¾	.24	.36	4	2.10	3.15
1	.28	.42	5	3.20	4.80
1¼	.36	.54	6	4.80	7.20
1½	.45	.69	8	13.00	19.50
2	.61	.92	...	.....	.....

Standard Malleable Iron Reducing Couplings

No. 123

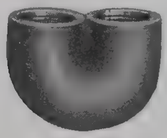
Size Inches	Black Each	Galv. Each	Size Inches	Black Each	Galv. Each
1/4x 1/8	$.17	$.22	2 x1	$.80	$1.00
3/8x 1/8	.17	.22	2 x1 1/4	.80	1.00
3/8x 1/4	.17	.22	2 x1 1/2	.80	1.00
1/2x 1/8	.19	.24	2 1/2x1	1.45	1.85
1/2x 1/4	.19	.24	2 1/2x1 1/4	1.45	1.85
1/2x 3/8	.19	.24	2 1/2x1 1/2	1.45	1.85
3/4x 1/4	.22	.29	2 1/2x2	1.45	1.85
3/4x 3/8	.22	.29	3 x1	2.00	2.50
3/4x 1/2	.22	.29	3 x1 1/4	2.00	2.50
1 x 1/4	.34	.44	3 x1 1/2	2.00	2.50
1 x 3/8	.34	.44	3 x2	2.00	2.50
1 x 1/2	.34	.44	3 x2 1/2	2.00	2.50
1 x 3/4	.34	.44	3 1/2x2	3.65	4.75
1 1/4x 1/2	.44	.58	3 1/2x2 1/2	3.65	4.75
1 1/4x 3/4	.44	.58	3 1/2x3	3.65	4.75
1 1/4x1	.44	.58	4 x1 1/2	4.00	5.30
1 1/2x 1/2	.55	.70	4 x2	4.00	5.30
1 1/2x 3/4	.55	.70	4 x2 1/2	4.00	5.30
1 1/2x1	.55	.70	4 x3	4.00	5.30
1 1/2x1 1/4	.55	.70	4 x3 1/2	4.00	5.30
2 x 1/2	.80	1.00	5 x4	7.50	10.00
2 x 3/4	.80	1.00	6 x4	10.00	13.00

Standard Malleable Iron Return Bends

Right-Hand

Close Pattern

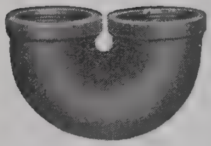
Will not make up parallel coils, as center to center distance of two adjacent bends is greater than center to center distance between openings of a single bend.



No. 131

Size Inches	Black Each	Galv. Each	Center to Center Inches
1/2	$.47	$.60	1
3/4	.56	.73	1 1/4
1	.68	.88	1 1/2
1 1/4	1.00	1.30	1 3/4
1 1/2	1.40	1.80	2 3/16
2	2.50	3.15	2 5/8

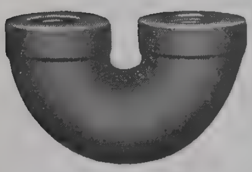
Medium Pattern



No. 132

Size Inches	Black Each	Galv. Each	Center to Center Inches
1/2	$.50	$.65	1 1/4
3/4	.60	.78	1 1/2
1	.73	.95	1 7/8
1 1/4	1.10	1.45	2 1/4
1 1/2	1.55	2.00	2 1/2
2	2.60	3.40	3

Open Pattern



No. 133

Size Inches	Black Each	Galv. Each	Center to Center Inches
1/2	$.53	$.69	1 1/2
3/4	.65	.85	2
1	.80	1.05	2 1/2
1 1/4	1.30	1.70	3
1 1/2	1.80	2.35	3 1/2
2	2.85	3.70	4
2 1/2	5.50	6.90	4 1/2
3	8.30	10.80	5
4	16.00	20.00	6

Walworth 300-Pound Malleable Iron Fittings

Black

Steam or Oil Service Pressure at 550°F.
1/4 to 6 Inches: 300 Pounds
8 to 12 Inches: 250 Pounds
Cold Water, Oil or Gas Non-Shock Service Pressure
1/4 to 1 Inch : 2000 Pounds
1 1/4 to 2 Inches: 1500 Pounds
2 1/2 to 4 Inches: 1000 Pounds
5 to 10 Inches: 800 Pounds
12 Inches: 600 Pounds

For high pressure water, oil, gas, air or steam lines.

Fittings carry beads of large diameter and are of greater length than fittings of the usual types. Thread lengths are made with extra long thread which assures the making of tight joints without difficulty.

Marked with both steam and cold W.O.G. ratings and MALL. Markings may appear all on one side, or part on one side and part on the other.

No. 7190 90° Elbows

WALWORTH
300
MALL

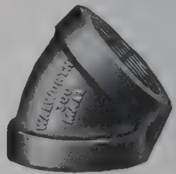
Size Inches	Each	Center to End Inches
1/4	$.47	15/16
3/8	.47	1 1/16
1/2	.72	1 1/4
3/4	.82	1 7/16
1	1.05	1 5/8
1 1/4	1.40	1 15/16
1 1/2	1.80	2 1/8
2	2.50	2 1/2
2 1/2	3.85	2 15/16
3	5.50	3 3/8
3 1/2	9.60	4 1/8
4	11.00	4 1/2
5	21.00	5 1/2
6	27.50	6 1/4
8	53.00	7 3/4
10	85.00	9 1/4
12	140.00	11 1/2

No. 7190A 90° Reducing Elbows

Standard Sizes

Size Inches	Each
3/8x 1/4	$.53
1/2x 3/8	.83
3/4x 1/2	.95
3/4x 3/8	.95
1 x 3/4	1.20
1 x 1/2	1.20
1 1/4x1	1.60
1 1/4x 3/4	1.60
1 1/2x1 1/4	2.05
1 1/2x1	2.05
2 x1 1/2	2.90
2 x1 1/4	2.90
2 1/2x2	4.50
3 x2 1/2	6.30

No. 7191 45° Elbows



Size Inches	Each	Center to End Inches
1/4	$.66	13/16
3/8	.66	7/8
1/2	.88	1
3/4	1.00	1 1/8
1	1.10	1 5/16
1 1/4	1.55	1 1/2
1 1/2	2.00	1 11/16
2	3.00	2
2 1/2	4.50	2 1/4
3	6.20	2 1/2
3 1/2	10.50	2 1/2
4	12.00	2 13/16
5	22.00	3 1/8
6	30.00	3 1/2
8	60.00	4 5/16
10	100.00	5 3/16
12	165.00	6

No. 7192 Tees

WALWORTH
300
MALL

Size Inches	Each	Center to End Inches
1/4	$.68	15/16
3/8	.68	1 1/16
1/2	.96	1 1/4
3/4	1.05	1 7/16
1	1.30	1 5/8
1 1/4	1.70	1 15/16
1 1/2	2.10	2 1/8
2	3.10	2 1/2
2 1/2	5.00	2 15/16
3	8.80	3 3/8
3 1/2	13.80	4 1/8
4	15.00	4 1/2
5	29.00	5 1/2
6	41.00	6 1/4
8	79.00	7 3/4
10	125.00	9 1/4
12	210.00	11 1/2

For galvanized fittings, add 50 per cent to above prices.

Walworth Malleable Iron Ball Pattern Railing Fittings

No. 1 90° Elbows

Size In.	No. 7401 Black Each	No. 7451 Galv. Each
½	$.43	$.56
¾	.52	.68
1	.64	.83
1¼	.92	1.20
1½	1.20	1.55
2	1.65	2.15

No. 3 Tees

Size In.	No. 7403 Black Each	No. 7453 Galv. Each
½	$.47	$.61
¾	.57	.74
1	.70	.91
1¼	1.00	1.25
1½	1.30	1.70
2	1.80	2.25

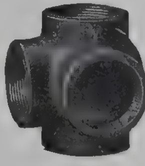
No. 6 Side Outlet Crosses

Size In.	No. 7406 Black Each	No. 7456 Galv. Each
½	$.80	$1.05
¾	.93	1.20
1	1.20	1.55
1¼	1.65	2.15
1½	2.20	2.85
2	2.95	3.85

No. 10 45° Elbows

Size In.	No. 7420 Black Each	No. 7470 Galv. Each
¾	$.57	$.74
1	.70	.91
1¼	1.00	1.25
1½	1.30	1.70
2	1.80	2.25
...	.....	....

No. 4 Side Outlet Tees



Size In.	No. 7404 Black Each	No. 7454 Galv. Each
½	$.69	$.90
¾	.82	1.05
1	1.10	1.45
1¼	1.45	1.90
1½	1.95	2.55
2	2.60	3.40

No. 7 Floor Flanges

Size In.	No. 7407 Black Each	No. 7457 Galv. Each
½	$.37	$.48
¾	.48	.62
1	.55	.72
1¼	.92	1.20
1½	1.35	1.75
2	2.35	3.15

No. 2 Side Outlet Elbows

Size In.	No. 7402 Black Each	No. 7452 Galv. Each
½	$.57	$.74
¾	.72	.94
1	.84	1.10
1¼	1.20	1.55
1½	1.60	2.10
2	2.20	2.85

No. 5 Crosses

Size In.	No. 7405 Black Each	No. 7455 Galv. Each
½	$.60	$.78
¾	.74	.96
1	.95	1.20
1¼	1.30	1.65
1½	1.75	2.25
2	2.35	2.95

No. 8 Ball Ornaments

Size In.	*No. 7408 Black Each	No. 7458 Galv. Each
½	$.67	$.87
¾	.80	.99
1	.95	1.25
1¼	1.15	1.50
1½	1.40	1.80
2	1.75	2.35

*Furnished with left hand threads when specified at no extra charge. If desired with female threads, specify No. 7409.

When ordering specify size and number.

Fittings furnished with all openings tapped right hand, unless otherwise specified. Nos. 3, 4, 5, and 6 will be furnished with right and left threads on run, at no extra charge. Fittings other than above tapped right and left or left hand will be charged at an advance in price. Orders for fittings to be tapped special should be accompanied by a sketch.

Reamed for slip joints when specified at additional price; sketch showing openings to be reamed is required.

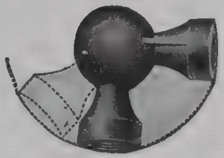
Walworth Malleable Iron Railing Fittings

Adjustable

By means of these fittings, almost any angle may be obtained in railings for stairs and other places requiring deviation from horizontal or perpendicular lines.

Regularly furnished tapped right hand.

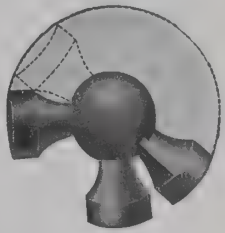
Elbows



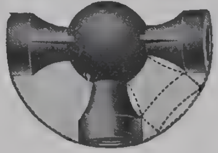
Size Inches	No. 7441 Black Each	No. 7491 Galv. Each
1	$2.70	$4.05
1¼	2.90	4.35
1½	3.70	5.55
2	5.75	8.62

Stair Tees

Size Inches	No. 7442 Black Each	No. 7492 Galv. Each
1	$3.50	$5.25
1¼	4.15	6.22
1½	4.60	6.90
2	8.00	12.00



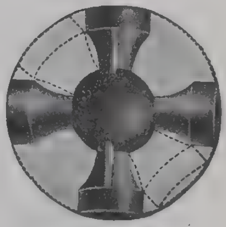
Tees



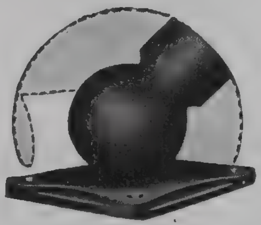
Size Inches	*No. 7443 Black Each	No. 7493 Galv. Each
1	$3.50	$5.25
1¼	4.15	6.22
1½	4.60	6.90
2	8.00	12.00

Crosses

Size Inches	*No. 7444 Black Each	No. 7494 Galv. Each
1	$4.20	$6.30
1¼	5.10	7.65
1½	6.00	9.00
2	10.00	15.00



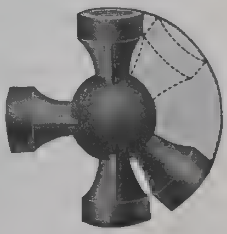
Flanges



Size Inches	No. 7445 Black Each	No. 7495 Galv. Each
1	$3.45	$5.17
1¼	4.10	6.15
1½	4.75	7.12
2	8.50	12.75

Stair Crosses

Size Inches	*No. 7446 Black Each	No. 7496 Galv. Each
1	$4.20	$6.30
1¼	5.10	7.65
1½	6.00	9.00
2	10.00	15.00



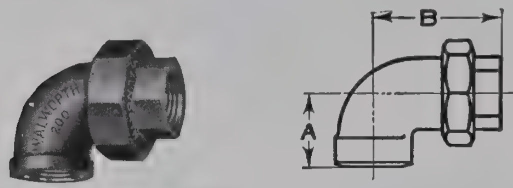
Can be furnished with side outlets, if desired. Prices upon application.

*Can be furnished with right and left threads on run at no extra charge.

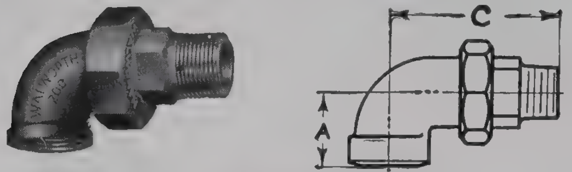
Walco Malleable Iron Union Elbows

Bronze to Iron Seat

200 Pounds Service Steam Pressure
400 Pounds Non-Shock Service Cold Water, Oil or Gas Pressure



Female Union End
No. 7231, Black—No. 7631, Galvanized



Male Union End
No. 7230, Black—No. 7630, Galvanized

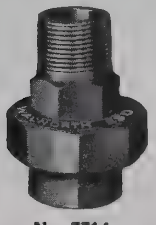
Size Inches	No. 7231 Black Each	No. 7631 Galv. Each	No. 7230 Black Each	No. 7630 Galv. Each	Dimensions—Inches A	B	C
¼	$1.45	$1.80	$1.60	$2.00	⅞	1¾	2 5/16
⅜	1.45	1.80	1.60	2.00	1	2 1/16	2 11/16
½	1.70	2.10	2.00	2.50	1¼	2 7/16	3⅛
¾	2.05	2.55	2.70	3.40	1 7/16	2⅝	3 7/16
1	2.50	3.15	3.25	4.10	1⅝	2 13/16	3 13/16
1¼	3.50	4.35	4.55	5.75	2	3⅜	4 7/16
1½	4.60	5.75	5.80	7.25	2 3/16	4 1/16	4 15/16
2	6.30	8.00	8.10	10.00	2 7/16	4 5/16	5⅛
*2½	....	....	....	.....	...	...	....
*3	....	....	....	.....	...	..	....

*Use AAR Patterns.

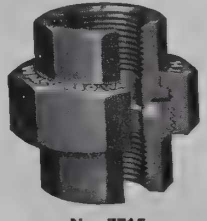
Walco Malleable Iron Unions

Bronze Cone to Ball Iron Seat

250 Pounds Service Steam Pressure
500 Pounds Non-Shock Service Cold Water, Oil or Gas Pressure



No. 7714
Male and Female Ends



No. 7715
Female Ends

For use on lines carrying hazardous liquids. American Standard pipe threads with the ends countersunk to permit easy starting of pipe. Bronze seat ring is forced into a recess in iron end of union under high pressure, making bronze mechanically integral with the iron.

Size Inches	Male and Female Ends No. 7714 Black Each	No. 7764 Galv. Each	End to End Inches	Female Ends No. 7715 Black Each	No. 7765 Galv. Each	End to End Inches
¼	$1.25	$1.50	2 1/16	$1.10	$1.30	1½
⅜	1.25	1.50	2⅜	1.10	1.30	1 13/16
½	1.45	1.75	2 11/16	1.15	1.40	1 15/16
¾	1.95	2.35	2⅞	1.30	1.55	2⅛
1	2.45	2.95	3⅜	1.70	2.05	2 7/16
1¼	3.40	4.10	3 11/16	2.35	2.85	2⅝
1½	4.05	4.85	3⅞	2.85	3.45	3
2	5.40	6.50	4⅛	3.60	4.30	3⅜
2½	9.70	11.50	4 13/16	7.35	8.80	3 13/16
3	15.25	18.25	5⅛	12.00	14.50	4⅛
*4	....	....	....	23.50	28.00	4½

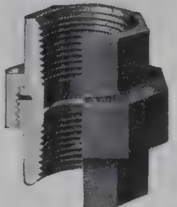
*Rated 200 pounds steam and 300 pounds WOG.

Walworth Malleable Iron Hub Unions

Bronze to Iron Seat—Ground Joint

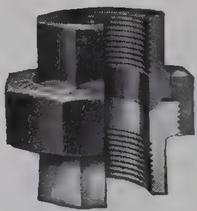
150 Pounds Service Steam Pressure

300 Pounds Non-Shock Service, Cold WOG



Size Inches	No. 7712 Black Each	No. 7762 Galv. Each
¼	$1.10	$1.30
⅜	1.10	1.30
½	1.15	1.40
¾	1.30	1.55
1	1.70	2.05
1¼	2.35	2.85
1½	2.85	3.45
2	3.60	4.30
2½	7.35	8.80
3	12.00	14.50

Walworth Kewanee Unions



400 Pounds Steam Service Pressure
Non-Shock Service Oil, Water, or Gas
Pressures at Ordinary Air Temperatures:
¼ to 2 Inches—2000 Pounds
2½ and 3 Inches—1200 Pounds

Forged manganese bronze to forged steel ball joint. No gaskets required. Forged steel ring, forged bronze thread end, and forged steel swivel.

Size In.	No. 8201 Black Each	No. 8251 Galv. Each	Size In.	No. 8201 Black Each	No. 8251 Galv. Each
*¼	$1.10	$1.50	1¼	$2.40	$3.30
⅜	1.10	1.50	1½	3.00	3.90
½	1.25	1.70	2	4.60	5.50
¾	1.50	2.05	2½	14.00	17.00
1	1.80	2.50	3	20.00	24.00

*Made with round ends.

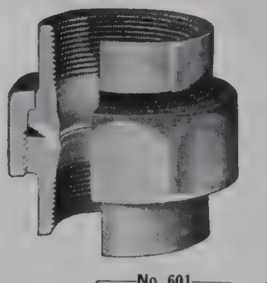
Rockwood Cold Forged Steel Unions

No. 601 With 2 Silicon Bronze Seats
For 600 Pounds Working Steam Pressure, 750°F.
For 3000 Pounds Hydraulic Pressure

No. 602 With 2 Stainless Steel Seats
For 600 Pounds Working Steam Pressure, 900°F.
For 3000 Pounds Hydraulic Pressure

No. 603 With 2 Molybdenum Steel Seats
For 600 Pounds Working Steam Pressure, 900°F.
For 3000 Pounds Hydraulic Pressure

Approved by Underwriters' Laboratories, Inc., for Use in Handling Flammable Liquids



Used in oil refining and producing, shipbuilding, steel, rubber, paper and textile industries and chemical companies.

The 2½ and 3-inch sizes of No. 601 have cast bronze seats. Maximum temperature, 450°F.

The 2½ and 3-inch sizes of No. 603 have solid steel construction, no inserted moly seats. Rockwoodized.

Size In.	No. 601 Each	Weight Pounds per Carton	No. 602 Each	Weight Pounds per Carton	No. 603 Each	Weight Pounds per Carton	No. Pieces per Carton
⅛	$1.40	16	$1.40	16	$1.40	16	50
¼	1.40	16	1.40	16	1.40	16	50
⅜	1.40	22	1.40	22	1.40	22	50
½	1.80	36	1.80	36	1.80	36	50
¾	2.15	53	2.15	53	2.15	53	50
1	2.60	76	2.60	76	2.60	76	50
1¼	3.20	44	3.20	44	3.20	44	20
1½	4.10	51	4.10	51	4.10	51	20
2	5.75	86	5.75	86	5.75	86	20
2½	11.00	33	....	..	11.00	50	6
3	16.50	43	....	..	16.50	74	6

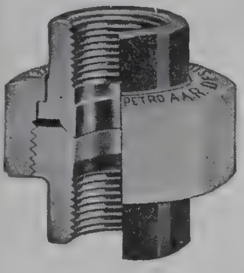
Petro A.A.R. Design Forged Steel Unions

Steel to Steel Seat

1150 Pounds Steam or Hot Oil Working Pressure at 500°F.
830 Pounds Steam or Hot Oil Working Pressure at 750°F.
670 Pounds Steam or Hot Oil Working Pressure at 850°F.
3000 Pounds Non-Shock Cold Water, Oil or Gas Working Pressure

Hot forged from A.I.S.I. 1023 open hearth killed forging steel. Not affected by vibration or shock.

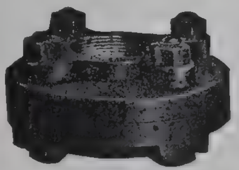
The nut and nut threads are permanently lubricated, rust-proofed and spark-proofed with Udylite cadmium.



Size In.	Black Comp. Each	Black Ends Each	Udylited Comp. Each	Udylited Ends and Nuts Each	Width Across Nuts In.	Lgth. Over-all In.	Wt. Lb. per 100
1/8	$1.40	$.56	$1.55	$.61	1 1/8	1 1/2	21
1/4	1.40	.56	1.55	.61	1 3/8	1 5/8	34
3/8	1.40	.56	1.55	.61	1 9/16	1 13/16	49
1/2	1.80	.71	2.00	.79	1 13/16	1 15/16	68
3/4	2.15	.85	2.40	.95	2 3/16	2 1/4	119
1	2.60	1.03	2.85	1.13	2 9/16	2 7/16	168
1 1/4	3.20	1.27	3.50	1.39	3 1/16	2 13/16	254
1 1/2	4.10	1.63	4.50	1.79	3 7/16	3	333
2	5.75	2.28	6.35	2.52	4 1/16	3 3/8	530
2 1/2	11.00	4.36	12.10	4.80	4 7/8	4	860
3	16.50	6.55	18.15	7.20	5 3/4	4 5/16	1270

Walworth Standard Cast Iron Flange Unions

125 Pounds Service Steam Pressure
175 Pounds Non-Shock Service Cold Water, Oil or Gas Pressure



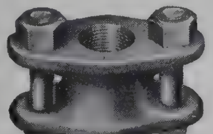
Size Inches	No. 1137 Black Each	No. 1537 Galv. Each	Diam. Flange Inches	No. of Bolts	Size Bolt In.
1/2	$1.10	$2.20	3 1/8	3	3/8
3/4	1.30	2.60	3 1/8	3	3/8
1	1.50	3.00	3 3/4	4	3/8
1 1/4	1.75	3.50	4 1/8	4	3/8
1 1/2	2.10	4.20	4 5/8	4	1/2
2	2.70	5.40	5 1/4	4	1/2
2 1/2	3.40	6.80	6	4	1/2
3	4.10	8.20	6 11/16	4	5/8
3 1/2	5.00	10.00	7 3/8	4	5/8
4	6.00	12.00	7 15/16	5	5/8
5	7.00	14.00	9 3/8	5	5/8
6	8.50	17.00	10 1/2	6	5/8
8	15.00	30.00	13 1/4	8	3/4

Galvanized flange unions are furnished with galvanized bolts.

Each union has a rubber gasket.

Vogt Drop Forged Steel Screwed Flange Unions

For Refrigeration Service

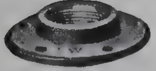


500 Pounds Cold Working Pressure

Oval; carbon steel; tongue and groove faces. Consists of one tongue and one groove flange, two bolts and gasket. Single flange available; specify tongue or groove face.

No.	330	331	332	333	334
Nominal Pipe Size............in.	1/4	3/8	1/2	3/4	1
Outside Size..................in.	3 3/4	3 3/4	3 3/4	4 3/4	4 3/4
Diam. Bolt Circle............in.	2 3/8	2 3/8	2 3/8	3 1/8	3 1/8
Depth of Groove..............in.	1/8	1/8	1/8	1/8	1/8
Diam. Bolts ....in.	1/2	1/2	1/2	5/8	5/8
Length Bolts..................in.	2 1/2	2 1/2	2 1/2	3	3
Approx. Wt....................lb.	2 1/4	2 1/4	2 1/4	4 1/4	4

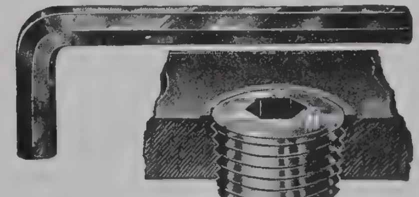
Walworth Cast Iron Floor Flanges



Pipe Size Inches	No. 1142 Black Each	No. 1542 Galv. Each	Pipe Size Inches	No. 1142 Black Each	No. 1542 Galv. Each
1/4x3	$.26	$.52	1 x4	$.40	$.80
3/8x3	.26	.52	1 1/4x4	.40	.80
1/2x3 1/2	.32	.64	1 1/2x4 1/2	.50	1.00
3/4x3 1/2	.32	.64	2 x5 1/2	.65	1.30

Allen Hex-Socket Pipe Plugs

Dryseal or Standard



Used by engine builders, steam equipment manufacturers, automobile and refrigerating engineers, etc.; also used in airplane motors.

Made from special-analysis Allenoy steel and milled from the bar, cold-worked and heat-treated hexagon sockets are accurate, uniform and perfectly formed all the way down.

The die-cut threads are perfect in lead; one key furnished with each box.

*Pipe Thrd........in.	1/16	1/8	1/4	3/8	1/2	3/4	1	1 1/4
Per 100............	$4.00	4.40	6.20	8.80	13.20	25.00	50.00	100.00
Nom. Diam. Large End...........in.	.312	.405	.540	.675	.840	1.050	1.315	1.660
Length.........inches	5/16	3/8	7/16	1/2	9/16	5/8	3/4	13/16
Hex. Open......inches	5/32	3/16	1/4	5/16	3/8	9/16	5/8	3/4
Threads......per inch	27	27	18	18	14	14	11 1/2	11 1/2
No. in Box..........	100	100	100	100	100	50	25	25

Extra Keys Short Arm

No......	532	316	14	516	38	916	58	34
Per 100..	$3.65	4.50	6.50	11.00	18.00	56.00	88.00	120.00

Extra Keys Long Arm

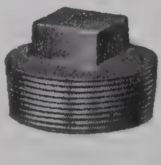
No......	532L	316L	14L	516L	38L	916L	58L	34L
Per 100..	$5.50	6.80	9.60	16.50	27.00	84.00	130.00	180.00

*Available in Dryseal, American Standard Pipe Thread (N.P.T.F.) or Standard, American National Pipe Thread (A.N.P.T.).

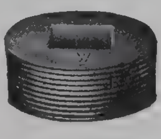
Can be furnished plated with cadmium, chromium, zinc, nickel, etc. at extra cost; also in duralumin, bronze, brass, stainless steel. Sizes other than listed can be furnished. Prices on application.

Walworth Standard 125-Pound Cast Iron Plugs

125 Pounds Service Steam Pressure
175 Pounds Non-Shock Cold Water, Oil or Gas Pressure



Square Head

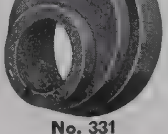


Countersunk

Size Inches	Square Head No. 1132 Black Each	Square Head No. 1532 Galv. Each	Countersunk No. 1133 Black Each	Countersunk No. 1533 Galv. Each	Solid No. 1134 Black Each	Solid No. 1534 Galv. Each
*1/8	....	....	....	....	$.07	$.12
*1/4	....	....	....	....	.07	.12
*3/8	....	....	....	....	.07	.12
1/2	$.07	$.12	$.13	$.22	.13	.22
3/4	.09	.15	.18	.30	.18	.30
1	.10	.17	.20	.34	.20	.34
1 1/4	.14	.24	.22	.37	.22	.37
1 1/2	.19	.32	.29	.49	.29	.49
2	.27	.46	.40	.68	.40	.68
2 1/2	.46	.78	.58	.98	.58	.98
3	.65	1.10	.94	1.60	.94	1.60
3 1/2	1.00	1.70	1.65	2.80	1.45	2.45
4	1.15	1.95	2.80	4.75	1.75	3.00
5	1.95	3.30	....	....	2.90	4.90
6	2.30	3.90	....	....	3.50	6.00
8	4.40	7.50	....	....	....	....

*Machined from steel rod.

Standard Cast Iron Eccentric Reducing Couplings



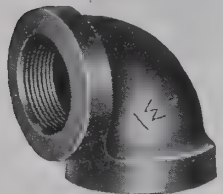
No. 331

Size In.	Black Each	Galv. Each	Size In.	Black Each	Galv. Each
1 1/4	$1.20	$2.40	3 1/2	$4.35	$8.70
1 1/2	1.50	3.00	4	5.60	11.20
2	2.20	4.40	5	7.80	15.60
2 1/2	2.80	5.60	6	10.50	21.00
3	3.45	6.90	8	20.00	40.00

Walworth Standard 125-Pound Cast Iron Screwed Fittings

125 Pounds Service Steam Pressure
175 Pounds Non-Shock Cold Water, Oil or Gas Pressure

90° Elbows



Size Inches	No. 1101 Black Each	No. 1501 Galv. Each
¼	$.19	$.38
⅜	.19	.38
½	.22	.44
¾	.28	.56
1	.34	.68
1¼	.44	.88
1½	.60	1.20
2	.90	1.80
2½	1.45	2.90
3	2.20	4.40
3½	3.10	6.20
4	4.00	8.00
5	6.85	13.70
6	9.00	18.00
8	18.50	37.00

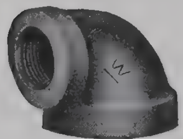
90° Pitched Elbows

Size Inches	No. 1102 Black Each	No. 1502 Galv. Each
½	$.23	$.46
¾	.31	.62
1	.36	.72
1¼	.48	.96
1½	.68	1.36
2	1.00	2.00

90° R. & L. Elbows

Size Inches	No. 1103 Black Each	No. 1503 Galv. Each
¾	$.31	$.62
1	.38	.76
1¼	.48	.96
1½	.66	1.32
2	.98	1.96

90° Reducing Elbows



Size Inches	No. 1104 Black Each	No. 1504 Galv. Each
½x ⅜	$.24	$.48
¾x ½	.31	.62
1 x ¾	.38	.76
1 x ½	.38	.76
1¼x1	.48	.96
1¼x ¾	.48	.96
1¼x ½	.48	.96
1½x1¼	.69	1.38
1½x1	.69	1.38
1½x ¾	.69	1.38

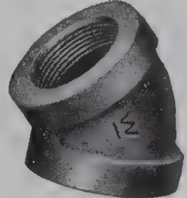
90° Reducing Elbows (Continued)

Size Inches	No. 1104 Black Each	No. 1504 Galv. Each
1½x ½	$.69	$1.38
2 x1½	.98	1.96
2 x1¼	.98	1.96
2 x1	.98	1.96
2 x ¾	.98	1.96
2 x ½	.98	1.96
2½x2	1.55	3.10
2½x2½	1.55	3.10
2½x1¼	1.55	3.10
2½x1	1.55	3.10
3 x2½	2.50	5.00
3 x2	2.50	5.00
3 x1½	2.50	5.00
3 x1¼	2.50	5.00
3½x3	3.30	6.60
4 x3½	4.30	8.60
4 x3	4.30	8.60
4 x2½	4.30	8.60
4 x2	4.30	8.60
5 x4	7.50	15.00
5 x3	7.50	15.00
5 x2½	7.50	15.00
6 x5	10.30	20.60
6 x4	10.30	20.60
6 x3	10.30	20.60
8 x6	20.00	40.00

90° Pitched Reducing Elbows

Size Inches	No. 1105 Black Each	No. 1505 Galv. Each
¾x ½	$.35	$.70
1 x ¾	.43	.86
1¼x1	.53	1.06
1½x1¼	.76	1.52
2 x1½	1.10	2.20

45° Elbows



Size Inches	No. 1106 Black Each	No. 1506 Galv. Each
¼	$.21	$.42
⅜	.21	.42
½	.24	.48
¾	.31	.62
1	.38	.76
1¼	.48	.96
1½	.68	1.36
2	.96	1.92
2½	1.55	3.10
3	2.40	4.80
3½	3.30	6.60
4	4.50	9.00
5	7.50	15.00
6	10.00	20.00
8	20.00	40.00

Pitched elbows tapped so pipe will pitch ¼ inch per foot; marked with letter P on band.

Right and left hand elbows have ribs on band of end that is tapped left hand.

Dimensions of reducing sizes upon request.

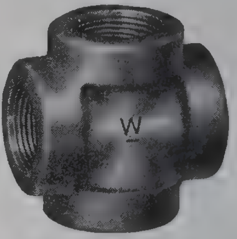
Walworth Standard 125-Pound Cast Iron Screwed Fittings

125 Pounds Service Steam Pressure
175 Pounds Non-Shock Cold Water, Oil or Gas Pressure

Tees

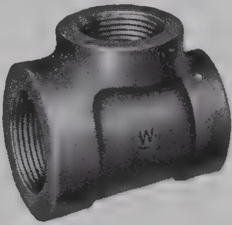
Size In.	No. 1110 Black Each	No. 1510 Galv. Each
¼	$.24	$.48
⅜	.24	.48
½	.31	.62
¾	.39	.78
1	.44	.88
1¼	.66	1.32
1½	.82	1.64
2	1.20	2.40
2½	1.85	3.70
3	2.80	5.60
3½	4.35	8.70
4	5.40	10.80
5	9.40	18.80
6	12.00	24.00
8	25.00	50.00

Crosses



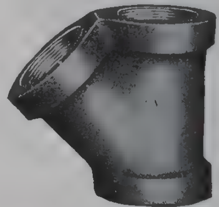
	Straight		Reducing	
Size In.	No. 1113 Black Each	No. 1513 Galv. Each	No. 1114 Black Each	No. 1514 Galv. Each
¾	$.47	$.94	.....	.....
1	.66	1.32	.....	.....
1¼	.88	1.76	.....	.....
1½	1.10	2.20	$1.30	$2.60
2	1.75	3.50	2.10	4.20
2½	2.80	5.60	3.30	6.60
3	4.50	9.00	5.20	10.40
3½	....	.....	7.25	14.50
4	7.80	15.60	9.00	18.00
5	....	.....	16.00	32.00
6	....	.....	22.00	44.00
8	....	.....	45.00	90.00

Reducing Tees



Size Inches	No. 1111 Black Each	No. 1511 Galv. Each
½	$.34	$.68
¾	.43	.86
1	.51	1.02
1¼	.72	1.44
1½	.94	1.88
2	1.30	2.60
2½	2.05	4.10
3	3.10	6.20
3½	4.80	9.60
4	6.20	12.40
5	10.50	21.00
6	14.00	28.00
8	27.00	54.00

Y Branches



Size Inches	No. 1115 Black Each	No. 1515 Galv. Each
¾	$.84	$1.68
1	1.00	2.00
1¼	1.30	2.60
1½	1.70	3.40
2	2.20	4.40
2½	4.00	8.00
3	5.60	11.20
4	9.50	19.00

Dimensions of reducing sizes upon request.

Other than stock reductions can be made to order from straight sizes by bushing in sand.

Close Return Bends

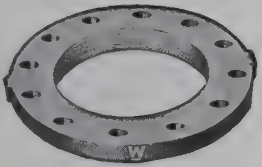
Size In.	No. 1121 Black R.H. Each	No. 1521 Galv. R.H. Each	Ctr. to Ctr. In.
½	$.50	$1.00	1¼
¾	.55	1.10	1½
1	.70	1.40	1¾
1¼	.90	1.80	2¼
1½	1.15	2.30	2½
2	1.90	3.80	3¼

Will not make up parallel coils as distance, center to center of two adjacent bends, is greater than center to center openings of a single bend.

Walworth Standard Pipe Flanges

Service Steam Pressures
125 Pounds— 1 to 12 Inches, Inclusive
100 Pounds—14 to 24 Inches, Inclusive

Companion Flanges



No. 1427

Back View

	No. 1427 Cast Iron		No. 1428 Steeliron	
Size Inches	Faced Only Each	Faced and Drilled Each	Faced Only Each	Faced and Drilled Each
1 x 4¼	$1.35	$1.35	$1.70	$1.70
1¼x 4⅝	1.45	1.45	1.80	1.80
1½x 5	1.53	1.53	1.90	1.90
2 x 6	1.70	1.70	2.12	2.12
2½x 7	1.87	1.87	2.35	2.35
3 x 7½	2.30	2.30	2.90	2.90
3½x 8½	2.90	2.90	3.65	3.65
4 x 9	3.45	3.45	4.30	4.30
5 x10	4.15	4.15	5.20	5.20
6 x11	5.00	5.00	6.25	6.25
8 x13½	7.50	7.50	9.40	9.40
10 x16	11.00	11.00	13.50	13.50
12 x19	15.00	15.00	18.80	18.80
14 x21	24.00	24.00	30.00	30.00
16 x23½	35.00	35.00	44.00	44.00
18 x25	42.00	42.00	52.50	52.50
20 x27½	50.00	50.00	62.50	62.50
24 x32	70.00	70.00	88.00	88.00

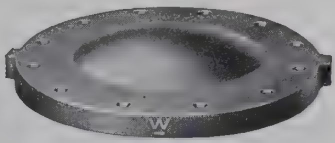
Furnished faced and drilled unless otherwise ordered.

Spot facing bolt holes, 20 cents per hole.

For galvanizing add 40 per cent to prices.

Cast Iron Flanges

No. 1431 Blind
16 Inches O.D. and Smaller



No. 1432 Dished
19 Inches O.D. and Larger

Size of Valve or Fitting and O.D. of Flange Inches		Faced Only Each	Faced and Drilled Each
1 x 4¼		$1.50	$1.50
1¼x 4⅝		1.60	1.60
1½x 5		1.70	1.70
2 x 6		1.85	1.85
2½x 7		2.05	2.05
3 x 7½		2.55	2.55
3½x 8½		3.20	3.20
4 x 9		3.85	3.85
5 x10		5.20	5.20
6 x11		6.30	6.30
8 x13½		9.30	9.30
10 x16		13.70	13.70
12 x19	Dished	21.00	21.00
14 x21	Dished	33.50	33.50
16 x23½	Dished	49.00	49.00
18 x25	Dished	59.00	59.00
20 x27½	Dished	70.00	70.00
24 x32	Dished	98.00	98.00

Furnished faced and drilled unless otherwise specified.

Steeliron, 25 per cent advance.

Spot facing bolt holes, 20 cents per hole in flanges all sizes and fittings 16 inches and smaller. Fittings 18 inches and larger are regularly spot faced.

When ordering blind flanges, always specify the outside diameter.

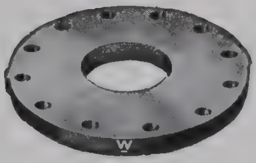
For galvanizing add 40 per cent to prices.

Standard Malleable Iron Flanges

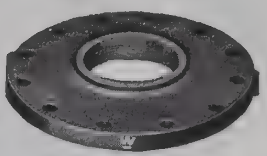
Standard malleable iron faced flanges use double the list price of standard cast iron flanges and discount applying to standard malleable iron flanges.

No. 1429 Walworth Cast Iron Screwed Reducing Flanges

125 Pounds Steam Working Pressure
175 Pounds Non-Shock Cold Water, Oil and Gas



Face View



Back View

Size Inches	Faced Each	Faced and Drilled Each	No. Bolts	Size Bolts Inches	Diam. Bolt Circle Inches
1 x5	$2.20	$2.20	4	½	3⅞
1 x6	2.45	2.45	4	⅝	4¾
1¼x6	2.45	2.45	4	⅝	4¾
1½x6	2.45	2.45	4	⅝	4¾
1½x7	2.70	2.70	4	⅝	5½
2 x7	2.70	2.70	4	⅝	5½
1½x7½	3.45	3.45	4	⅝	6
2 x7½	3.45	3.45	4	⅝	6
2½x7½	3.45	3.45	4	⅝	6
3 x8½	4.35	4.35	8	⅝	7
1½x9	5.20	5.20	8	⅝	7½
2 x9	5.20	5.20	8	⅝	7½
2½x9	5.20	5.20	8	⅝	7½
3 x9	5.20	5.20	8	⅝	7½
3½x9	5.20	5.20	8	⅝	7½
3 x10	6.25	6.25	8	¾	8½
4 x10	6.25	6.25	8	¾	8½
2 x11	7.50	7.50	8	¾	9½
2½x11	7.50	7.50	8	¾	9½
3 x11	7.50	7.50	8	¾	9½
4 x11	7.50	7.50	8	¾	9½
5 x11	7.50	7.50	8	¾	9½
3 x13½	11.20	11.20	8	¾	11¾
4 x13½	11.20	11.20	8	¾	11¾
5 x13½	11.20	11.20	8	¾	11¾
6 x13½	11.20	11.20	8	¾	11¾
6 x16	16.50	16.50	12	⅞	14¼
8 x16	16.50	16.50	12	⅞	14¼
8 x19	22.50	22.50	12	⅞	17
10 x19	22.50	22.50	12	⅞	17

Flanges are regularly furnished faced and drilled unless otherwise ordered.

Reducing flanges are of the same thickness as regular flanges of the same outside diameter.

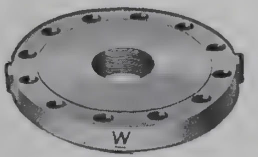
Reducing flanges can be used to avoid delay in furnishing reducing flanged fittings; orders should read: "reduce with flanges if necessary."

Eccentric reducing flanges, prices upon application.

NOTE: For galvanized flanges, add 40 per cent to the above prices for black fittings.

No. 1461 Screwed Reducing Flanges

250 Pound—Cast Iron and Steeliron



Has $\frac{1}{16}$-inch raised face inside of bolts. Will be furnished faced and drilled, unless specified faced only.

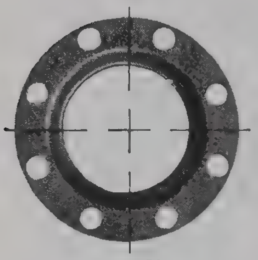
When ordering specify the pipe size and the outside diameter of the flange.

Size.......inches	2	2½	3	4	4	5	6
Cast Iron.....ea.	$6.20	6.20	9.50	11.00	13.50	13.50	20.00
Diameter.....in.	8¼	8¼	10	11	12½	12½	15
No. of Bolts.....	8	8	8	8	12	12	12
Size Bolts.....in.	¾	¾	¾	¾	¾	¾	⅞
Diam. Bolt Circle.......in.	6⅝	6⅝	7⅞	9¼	10⅝	10⅝	13

Steeliron, made to order only, 25 per cent additional.

Galvanized flanges are 40 per cent additional.

Template for Drilling 125-Pound Flanged Cast Iron Valves and Fittings



No. 530

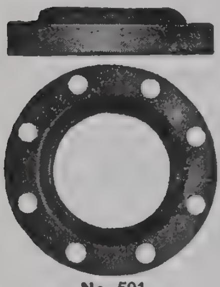
These drilling templates are in multiples of four so that fittings may be turned to face in any quarter when being installed, bolt holes straddle the center line unless otherwise ordered. Can be drilled to any other template.

For bolts smaller than 1¾-inch diameter, bolt holes are drilled ⅛ inch larger than diameter of bolt. For bolts 1¾-inch diameter and larger, bolt holes are drilled ¼ inch larger than diameter of bolt.

Size In.	Diam. Flanges In.	Thickness Flanges In.	Bolt Circle In.	No. Bolts	Size Bolts In.	Bolt Lengths In.
1	4¼	7/16	3⅛	4	½	1¾
1¼	4⅝	½	3½	4	½	2
1½	5	9/16	3⅞	4	½	2
2	6	⅝	4¾	4	⅝	2¼
2½	7	11/16	5½	4	⅝	2½
3	7½	¾	6	4	⅝	2½
3½	8½	13/16	7	8	⅝	2¾
4	9	15/16	7½	8	⅝	3
5	10	15/16	8½	8	¾	3
6	11	1	9½	8	¾	3¼
8	13½	1⅛	11¾	8	¾	3½
10	16	1 3/16	14¼	12	⅞	3¾
12	19	1¼	17	12	⅞	3¾
14	21	1⅜	18¾	12	1	4¼
16	23½	1 7/16	21¼	16	1	4½
18	25	1 9/16	22¾	16	1⅛	4¾
20	27½	1 11/16	25	20	1⅛	5
24	32	1⅞	29½	20	1¼	5½
30	38¾	2⅛	36	28	1¼	6¼
36	46	2⅜	42¾	32	1½	7
42	53	2⅝	49½	36	1½	7½
48	59½	2¾	56	44	1½	7¾
54	66¼	3	62¾	44	1¾	*10½
60	73	3⅛	69¼	52	1¾	*10¾
72	86½	3½	82½	60	1¾	*11½
84	99¾	3⅞	95½	64	2	*12¾
96	113¼	4¼	108½	68	2¼	*14

*Bolt studs with 2 nuts.

Templates for Drilling 250-Pound Flanged Cast Iron Valves and Fittings



No. 501

These drilling templates are in multiples of four so that fittings may be made to face in any quarter, and bolt holes straddle the center line. Can be drilled to any other template.

For bolts smaller than 1¾-inch diameter, bolt holes are drilled ⅛ inch larger than the diameter of bolt. For bolts 1¾-inch diameter and larger, bolt holes are drilled ¼ inch larger than diameter of bolt.

Size In.	Diam. Flanges Inches	Thickness Flanges Inches	Bolt Circle Inches	No. Bolts	Size Bolts In.	Bolt Lengths Inches
1	4⅞	11/16	3½	4	⅝	2½
1¼	5¼	¾	3⅞	4	⅝	2½
1½	6⅛	13/16	4½	4	¾	2¾
2	6½	⅞	5	8	⅝	2¾
2½	7½	1	5⅞	8	¾	3¼
3	8¼	1⅛	6⅝	8	¾	3½
3½	9	1 3/16	7¼	8	¾	3½
4	10	1¼	7⅞	8	¾	3¾
5	11	1⅜	9¼	8	¾	4
6	12½	1 7/16	10⅝	12	¾	4
8	5	1⅝	13	12	⅞	4½
10	17½	1⅞	15¼	16	1	5¼
12	20½	2	17¾	16	1⅛	5½
14	23	2⅛	20¼	20	1⅛	6
16	25½	2¼	22½	20	1¼	6¼
18	28	2⅜	24¾	24	1¼	6½
20	30½	2½	27	24	1¼	6¾
24	36	2¾	32	24	1½	* 9½
30	43	3	39¼	28	1¾	*10½
36	50	3⅜	46	32	2	*11¾
42	57	3 11/16	52¾	36	2	*12½
48	65	4	60¾	40	2	*13

*Bolt-studs with two nuts.

Walworth 250-Pound Pipe Flanges

Face View

Back View

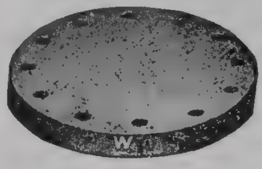
Size Inches	Diam. Inches	No. 1459, Cast Iron Faced Only Each	No. 1459, Cast Iron Faced and Drilled Each	No. 1460, Steel Iron Faced Only Each	No. 1460, Steel Iron Faced and Drilled Each
1½	6⅛	$2.75	$2.75	$3.40	$3.40
2	6½	3.00	3.00	3.75	3.75
2½	7½	3.35	3.35	4.20	4.20
3	8¼	4.15	4.15	5.20	5.20
3½	9	5.20	5.20	6.50	6.50
4	10	6.20	6.20	7.75	7.75
5	11	7.50	7.50	9.50	9.50
6	12½	9.00	9.00	11.00	11.00
8	15	13.50	13.50	17.00	17.00
10	17½	20.00	20.00	25.00	25.00
12	20½	27.00	27.00	34.00	34.00

Furnished faced and drilled unless otherwise ordered.

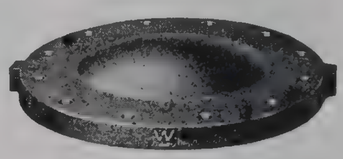
Add 40 per cent to above prices for galvanizing.

Spot facing bolt holes, all sizes of flanges and flanged fittings, 20 cents per hole.

Blind Flanges



15-Inch O.D. and Smaller, Plain



17½ O.D. and Larger, Dished

When Ordering be certain to specify outside diameter.

Plain

Size of Valve or Fitting and O.D. of Flange Inches	No. 1462, Cast Iron Faced Only Each	No. 1462, Cast Iron Faced and Drilled Each	No. 1464 Steeliron Faced Only Each	No. 1464 Steeliron Faced and Drilled Each
1½x 6⅛	$3.15	$3.15	$4.00	$4.00
2 x 6½	3.40	3.40	4.25	4.25
2½x 7½	3.85	3.85	4.80	4.80
3 x 8¼	4.50	4.50	5.60	5.60
3½x 9	5.60	5.60	7.00	7.00
4 x10	6.80	6.80	8.50	8.50
5 x11	9.40	9.40	11.70	11.70
6 x12½	11.50	11.50	14.50	14.50
8 x15	17.00	17.00	21.00	21.00

Dished

Size of Valve or Fitting and O.D. of Flange Inches	No. 1462, Cast Iron Faced Only Each	No. 1462, Cast Iron Faced and Drilled Each	No. 1464 Steeliron Faced Only Each	No. 1464 Steeliron Faced and Drilled Each
10 x17½	$24.50	$24.50	$31.00	$31.00
12 x20½	38.00	38.00	47.00	47.00

Furnished faced and drilled unless otherwise ordered.

Add 40 per cent to above prices for galvanizing.

Spot facing bolt holes, all sizes of flanges and flanged fittings, 20 cents per hole.

Walworth 125-Pound Cast Iron Flanged Fittings

1 to 12 Inches: 125 Pounds Service Steam Pressure
175 Pounds Non-Shock Cold Water, Oil and Gas

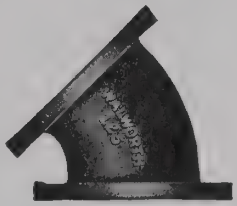
14 to 24 Inches: 100 Pounds Steam Working Pressure
150 Pounds Non-Shock Cold Water, Oil and Gas

90° Elbows

No. 1401

Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
1½	$7.20	$7.20	4
2	7.20	7.20	4½
2½	8.10	8.10	5
3	9.40	9.40	5½
3½	11.50	11.50	6
4	12.50	12.50	6½
5	15.50	15.50	7½
6	21.50	21.50	8
8	33.00	33.00	9
10	60.00	60.00	11
12	86.00	86.00	12
14	114.00	114.00	14
16	162.00	162.00	15
18	230.00	230.00	16½
20	325.00	325.00	18
24	420.00	420.00	22

45° Elbows



No. 1402

Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
1½	$8.30	$8.30	2¼
2	8.30	8.30	2½
2½	9.30	9.30	3
3	11.00	11.00	3
3½	13.00	13.00	3½
4	14.50	14.50	4
5	18.00	18.00	4½
6	22.00	22.00	5
8	33.00	33.00	5½
10	59.00	59.00	6½
12	86.00	86.00	7½
14	114.00	114.00	7½
16	162.00	162.00	8
18	230.00	230.00	8½
20	325.00	325.00	9½
24	420.00	420.00	11

Long Radius Elbows

No. 1404

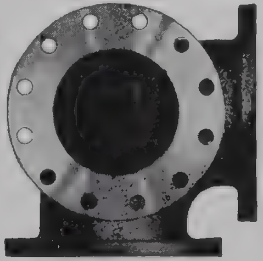
Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
2	$12.00	$12.00	6½
2½	13.50	13.50	7
3	15.00	15.00	7¾
3½	18.50	18.50	8½
4	19.50	19.50	9
5	24.00	24.00	10¼
6	31.00	31.00	11½
8	54.00	54.00	14
10	81.00	81.00	16½
12	130.00	130.00	19
14	203.00	203.00	21½
16	270.00	270.00	24
18	338.00	338.00	26½
20	433.00	433.00	29
24	810.00	810.00	34

Reducing Taper Elbows

No. 1403

Size Inches	Faced Each	Faced and Drilled Each
2 x 1½	$13.20	$13.20
2½x 2	14.00	14.00
3 x 2½	15.00	15.00
3 x 2	15.00	15.00
4 x 3	18.50	18.50
4 x 2½	18.50	18.50
4 x 2	18.50	18.50
5 x 4	21.50	21.50
5 x 3	21.50	21.50
6 x 5	28.00	28.00
6 x 4	28.00	28.00
6 x 3	28.00	28.00
8 x 6	41.00	41.00
8 x 5	41.00	41.00
8 x 4	41.00	41.00
10 x 8	64.00	64.00
10 x 6	64.00	64.00
12 x10	111.00	111.00
12 x 8	111.00	111.00
12 x 6	111.00	111.00
14 x12	157.00	157.00
16 x12	190.00	190.00

Side Outlet Elbows



No. 1406

Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
4	$62.00	$62.00	6½
5	68.00	68.00	7½
6	70.00	70.00	8
8	108.00	108.00	9
10	160.00	160.00	11
12	230.00	230.00	12

Has all openings on intersecting center lines. Reducing side outlet elbows regularly made reducing on side outlet only. All others special, describe by sketch showing size and location of openings.

Reducing Long Radius Elbows

No. 1404A

Size Inches	Faced Each	Faced and Drilled Each
3x 2½	$21.50	$21.50
3x 2	21.50	21.50
4x 3	27.00	27.00
5x 4	35.00	35.00
6x 5	44.00	44.00
6x 4	44.00	44.00
8x 6	76.00	76.00
8x 5	76.00	76.00
10x 8	135.00	135.00
12x10	195.00	195.00

Flanged fittings are shipped faced and drilled unless otherwise ordered.

Reducing fittings listed have the same center to face dimensions as the largest opening in the corresponding straight sizes.

Reducing sizes not listed are special.

NOTE: For galvanized flanged fittings, add 40 per cent to the above prices for black fittings.

Walworth 125-Pound Cast Iron Flanged Fittings

1 to 12 Inches: 125 Pounds Service Steam Pressure
175 Pounds Non-Shock Cold Water, Oil and Gas

14 to 24 Inches: 100 Pounds Steam Working Pressure
150 Pounds Non-Shock Cold Water, Oil and Gas

Crosses

No. 1418

Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
2	$17.50	$17.50	4½
2½	19.00	19.00	5
3	21.00	21.00	5½
4	30.00	30.00	6½
5	38.00	38.00	7½
6	49.00	49.00	8
8	76.00	76.00	9
10	113.00	113.00	11
12	162.00	162.00	12

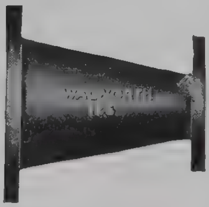
45° Laterals

No. 1422

Size Inches	Faced Each	Faced and Drilled Each	Dimensions, Inches: Face to Face	Long Center to Face	Short Center to Face
2	$20.00	$20.00	10½	8	2½
2½	22.00	22.00	12	9½	2½
3	24.50	24.50	13	10	3
4	34.00	34.00	15	12	3
5	43.00	43.00	17	13½	3½
6	58.00	58.00	18	14½	3½
8	86.00	86.00	22	17½	4½
10	130.00	130.00	25½	20½	5
12	189.00	189.00	30	24½	5½

Laterals 8 inches and larger are ribbed.

Taper Reducers



No. 1424

Size Inches	Faced Each	Faced and Drilled Each	Face to Face In.
2½x1½	$14.00	$14.00	5½
3 x2½	15.00	15.00	6
3 x2	15.00	15.00	6
3 x1½	15.00	15.00	6
3½x3	18.00	18.00	6½
4 x3½	20.00	20.00	7
4 x3	20.00	20.00	7
4 x2½	20.00	20.00	7
4 x2	20.00	20.00	7
5 x4	24.50	24.50	8
5 x3	24.50	24.50	8
5 x2½	24.50	24.50	8
6 x5	30.00	30.00	9
6 x4	30.00	30.00	9
6 x3	30.00	30.00	9
6 x2½	30.00	30.00	9
6 x2	30.00	30.00	9

Size Inches	Faced Each	Faced and Drilled Each	Face to Face In.
8x6	$38.00	$38.00	11
8x5	38.00	38.00	11
8x4	38.00	38.00	11
10x8	68.00	68.00	12
10x6	68.00	68.00	12
12x10	103.00	103.00	14
12x8	103.00	103.00	14
12x6	103.00	103.00	14
14x12	148.00	148.00	16
14x10	148.00	148.00	16
14x8	148.00	148.00	16
14x6	148.00	148.00	16
16x14	190.00	190.00	18
16x12	190.00	190.00	18
16x10	190.00	190.00	18

Eccentric Reducers

No. 1425

Size Inches	Faced Each	Faced and Drilled Each	Face to Face In.
3x2	$15.00	$15.00	6
4x3	20.00	20.00	7
5x4	24.50	24.50	8
6x5	30.00	30.00	9
6x4	30.00	30.00	9
8x6	38.00	38.00	11
10x8	68.00	68.00	12
12x10	103.00	103.00	14

Flanged fittings are shipped faced and drilled unless otherwise ordered. Sizes not listed are special.

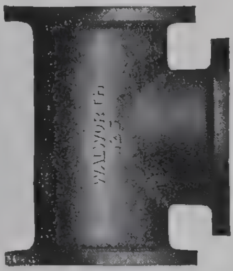
NOTE: For galvanized flanged fittings, add 40 per cent to the above prices for black fittings.

Walworth 125-Pound Cast Iron Flanged Fittings

1 to 12 Inches: 125 Pounds Service Steam Pressure
175 Pounds Non-Shock Cold Water, Oil and Gas

14 to 24 Inches: 100 Pounds Steam Working Pressure
150 Pounds Non-Shock Cold Water, Oil and Gas

Tees



No. 1410

Size Inches	Faced Each	Faced and Drilled Each	Center To Face Inches
1½	$9.50	$9.50	4
2	9.50	9.50	4½
2½	11.00	11.00	5
3	12.00	12.00	5½
3½	19.00	19.00	6
4	20.00	20.00	6½
5	24.50	24.50	7½
6	29.00	29.00	8
8	43.00	43.00	9
10	86.00	86.00	11
12	108.00	108.00	12
14	189.00	189.00	14
16	270.00	270.00	15
18	325.00	325.00	16½
20	400.00	400.00	18
24	600.00	600.00	22

Reducing Tees

No. 1411

Size Inches	Faced Each	Faced and Drilled Each
2 x2 x1½	$13.25	$13.25
2½x2½x2	14.50	14.50
3 x3 x2½	17.50	17.50
3 x3 x2	17.50	17.50
3 x3 x1½	17.50	17.50
3 x2½x3	17.50	17.50
3 x2½x2½	17.50	17.50
3 x2 x3	17.50	17.50
3 x2 x2	17.50	17.50
2½x2½x3	17.50	17.50
4 x4 x3	25.00	25.00
4 x4 x2½	25.00	25.00
4 x4 x2	25.00	25.00
4 x4 x1½	25.00	25.00
4 x3 x4	25.00	25.00
4 x3 x3	25.00	25.00

Continued

Reducing Tees

Continued

Size Inches	Faced Each	Faced and Drilled Each
4 x 2½x 4	$25.00	$25.00
4 x 2½x 3	25.00	25.00
4 x 2½x 2½	25.00	25.00
4 x 2 x 4	25.00	25.00
3 x 3 x 4	25.00	25.00
5 x 5 x 4	30.00	30.00
5 x 5 x 3	30.00	30.00
5 x 5 x 2½	30.00	30.00
5 x 5 x 2	30.00	30.00
5 x 4 x 5	30.00	30.00
5 x 4 x 4	30.00	30.00
4 x 4 x 5	30.00	30.00
6 x 6 x 5	35.00	35.00
6 x 6 x 4	35.00	35.00
6 x 6 x 3	35.00	35.00
6 x 6 x 2½	35.00	35.00
6 x 6 x 2	35.00	35.00
6 x 5 x 6	35.00	35.00
6 x 5 x 5	35.00	35.00
6 x 5 x 4	35.00	35.00
6 x 4 x 6	35.00	35.00
6 x 4 x 4	35.00	35.00
6 x 4 x 3	35.00	35.00
6 x 3 x 6	35.00	35.00
6 x 3 x 4	35.00	35.00
6 x 3 x 3	35.00	35.00
6 x 2 x 6	35.00	35.00
5 x 5 x 6	35.00	35.00
4 x 4 x 6	35.00	35.00
8 x 8 x 6	60.00	60.00
8 x 8 x 5	60.00	60.00
8 x 8 x 4	60.00	60.00
8 x 8 x 3	60.00	60.00
8 x 6 x 8	60.00	60.00
8 x 6 x 6	60.00	60.00
8 x 6 x 5	60.00	60.00
8 x 6 x 4	60.00	60.00
8 x 6 x 3	60.00	60.00
8 x 5 x 8	60.00	60.00
8 x 4 x 8	60.00	60.00
8 x 4 x 6	60.00	60.00
6 x 6 x 8	60.00	60.00
10 x10 x 8	90.00	90.00
10 x10 x 6	90.00	90.00
10 x10 x 5	90.00	90.00
10 x10 x 4	90.00	90.00
10 x10 x 3	90.00	90.00
10 x 8 x10	90.00	90.00
10 x 8 x 8	90.00	90.00
10 x 8 x 6	90.00	90.00
8 x 8 x10	90.00	90.00
12 x12 x10	130.00	130.00
12 x12 x 8	130.00	130.00
12 x12 x 6	130.00	130.00
12 x12 x 5	130.00	130.00
12 x12 x 4	130.00	130.00
12 x10 x12	130.00	130.00
12 x10 x10	130.00	130.00
12 x10 x 8	130.00	130.00
12 x10 x 6	130.00	130.00
12 x 8 x12	130.00	130.00
12 x 8 x 8	130.00	130.00
10 x10 x12	130.00	130.00
14 x14 x 8	200.00	200.00

Flanged fittings are regularly furnished faced and drilled unless otherwise ordered.

Sizes which are not listed are special.

Reducing fittings listed have the same center to face dimensions as the largest opening in the corresponding straight sizes.

NOTE: For galvanized flanged fittings add 40 per cent to above prices for black fittings.

Walworth 250-Pound Cast Iron Flanged Fittings

250 Pounds Service Steam Pressure

400 Pounds Non-Shock Cold Water, Oil and Gas

90° Elbows

No. 1433

45° Elbows

No. 1434

Reducing Taper Elbows

No. 1435

Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
2	$11.00	$11.00	5
2½	11.50	11.50	5½
3	13.50	13.50	6
4	18.00	18.00	7
5	22.00	22.00	8
6	31.00	31.00	8½
8	48.00	48.00	10
10	86.00	86.00	11½
12	125.00	125.00	13

Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
2	$12.00	$12.00	3
2½	13.50	13.50	3½
3	15.50	15.50	3½
4	21.00	21.00	4½
5	26.00	26.00	5
6	31.00	31.00	5½
8	47.00	47.00	6
10	86.00	86.00	7
12	125.00	125.00	8

Flanges of all 250-pound fittings have a raised face 1/16-inch high. The raised face is included in the flange thickness and center to face dimensions.

Flanges are furnished smooth faced. Phonograph or serrated facing can be furnished at additional charge.

Flanged fittings furnished faced and drilled unless otherwise ordered.

Size Inches	Faced Each	Faced and Drilled Each
2½x2	$21.00	$21.00
3 x2½	23.00	23.00
4 x3	34.00	34.00
4 x2½	34.00	34.00
5 x4	41.00	41.00
5 x3	41.00	41.00
6 x5	50.00	50.00
6 x4	50.00	50.00
8 x6	83.00	83.00
8 x5	83.00	83.00
8 x4	83.00	83.00
10 x8	122.00	122.00
10 x6	122.00	122.00
10 x5	122.00	122.00

Crosses

No. 1450

45° Laterals

No. 1454

Size Inches	Faced Each	Faced and Drilled Each	Center to Face Inches
2	$32.00	$32.00	5
2½	34.00	34.00	5½
3	38.00	38.00	6
4	49.00	49.00	7
5	65.00	65.00	8
6	80.00	80.00	8½
8	124.00	124.00	10
10	195.00	195.00	11½

Size Inches	Faced Each	Faced and Drilled Each	Dimen., In. Face to Face	Dimen., In. Long Center to Face	Dimen., In. Short Center to Face
3	$42.00	$42.00	14	11	3
4	54.00	54.00	16½	13½	3
5	71.00	71.00	18½	15	3½
6	88.00	88.00	21½	17½	4
8	136.00	136.00	25½	20½	5
10	215.00	215.00	29½	24	5½

Reducing fittings listed have the same center to face dimensions as the largest opening in the corresponding straight sizes.

Sizes which are not listed are special.

Steeliron, 3½ inches and smaller, 50 per cent advance; 4 inches and larger, 25 per cent advance.

Note: For galvanized flanged fittings, add 40 per cent to above prices for black fittings.

Bonney WeldOlet Drop Forged Steel Welding Fittings

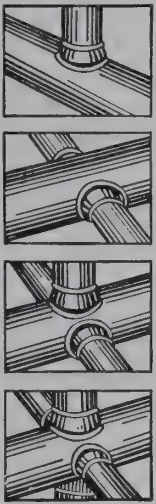
Standard Weight

WeldOlets are standard, stock welding fittings of drop forged steel, designed for making any type or combination of right angle branch pipe outlets.

Made in three types: with welding outlet, threaded outlet and socket outlet.

Easily Installed

WeldOlets are easily installed. Select the position of the outlet, rub the fitting over the pipe several times to remove scale. Then mark the center lines.



Hole should be cut in main pipe before tacking fitting into position, but can be cut after fitting is installed if desired. Fitting is used as a template and hole is cut with a torch.

The electric arc or oxy-acetylene method of welding is used to complete the job. A junction of full pipe strength and a leakproof joint is the result.

BONNEY
WELDOLET

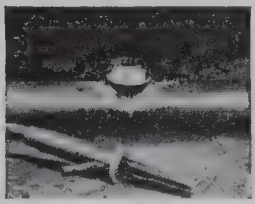
The branch line is then attached either by welding or screwing into place depending upon the type of outlet used. Result a leakproof junction of full pipe strength.

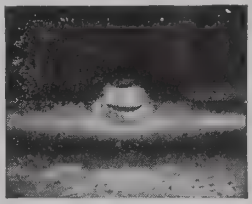
Code and Design

Designed and manufactured according to the requirements of the American Standard for Steel Butt-Welding Fittings (A.S.A. B16.9, latest modification), the American Standard for Steel Socket Welding Fittings (A.S.A. B16.11—1946) and the American Standard Code for Pressure Piping, (A.S.A. B31.1—1951). WeldOlets are designed so that their actual bursting strength exceeds the computed bursting strength of pipe of the designated weight or schedule number and material.

Temperature-Pressure Rating

WeldOlet Welding Fittings are identical to the ratings of seamless pipe of the same size, pipe weight or schedule number and grade of material. These ratings are based on the American Standard Code for Pressure Piping, (A.S.A. B31.1—1951), and the A.S.M.E. Boiler Construction Code.





WeldOlets—Butt-Welding

Reducing Size

Nominal Size Run Pipe Inches	Outlet Size Inches	*Height Inches	Each	Nominal Size Run Pipe Inches	Outlet Size Inches	*Height Inches	Each
3/8 to 36	1/8	9/16	$.68	4 to 36	3 1/2	1 7/8	$4.47
3/8 to 36	1/4	9/16	.68	5 to 36	4	1 31/32	5.07
1/2 to 36	3/8	3/4	.68	6 to 36	5	2 1/4	11.13
3/4 to 36	1/2	3/4	.68	8 to 36	6	2 1/2	14.67
1 to 36	3/4	7/8	.81	10 to 36	†8	2 3/4	22.61
1 1/4 to 36	1	1 1/16	.93	12 to 36	†10	3 1/16	40.37
1 1/2 to 36	1 1/4	1 1/4	1.17	14 to 36	†12	3 3/8	68.64
2 to 36	1 1/2	1 5/16	1.41	16 to 36	†14	3 1/2	86.40
2 1/2 to 36	2	1 1/2	1.85	18 to 36	†16	3 11/16	113.05
3 to 36	2 1/2	1 5/8	2.51	20 to 36	†18	3 13/16	141.30
3 1/2 to 36	3	1 3/4	2.97	24 to 36	†20	3 21/32	169.57

Full Size

Nominal Size Run Pipe In.	Outlet Size In.	*Height In.	Each	Nominal Size Run Pipe In.	Outlet Size In.	*Height In.	Each
1/2	1/2	3/4	$.68	5	5	2 5/16	$11.13
3/4	3/4	7/8	.81	6	6	2 3/8	14.67
1	1	1	.93	8	†8	2 1/2	22.61
1 1/4	1 1/4	1 1/8	1.17	10	†10	3	40.37
1 1/2	1 1/2	1 1/4	1.41	12	†12	3 3/8	68.64
2	2	1 1/2	1.85	14	†14	3 1/2	86.40
2 1/2	2 1/2	1 11/16	2.51	16	†16	3 11/16	113.05
3	3	2	2.97	18	†18	4 1/32	141.30
3 1/2	3 1/2	2 1/16	4.47	20	†20	4 5/8	169.57
4	4	2 3/16	5.07	24	†24	5 7/16	234.17

WeldOlets—Socket-Welding

Reducing Size

Nominal Size Run Pipe Inches	Outlet Size Inches	*Height Inches	Each	Nominal Size Run Pipe Inches	Outlet Size Inches	*Height Inches	Each
3/8 to 36	1/8	21/32	$.81	3 to 36	2 1/2	1 13/16	$3.23
3/8 to 36	1/4	21/32	.81	3 1/2 to 36	3	2	4.28
1/2 to 36	3/8	13/16	.81	4 to 36	3 1/2	2 1/8	9.49
3/4 to 36	1/2	63/64	.81	5 to 36	4	2 1/4	10.69
1 to 36	3/4	1 3/64	.93	6 to 36	5	2 5/8	21.40
1 1/4 to 36	1	1 9/32	1.09	8 to 36	6	2 11/16	42.80
1 1/2 to 36	1 1/4	1 21/64	1.37	10 to 36	†8	2 3/4	72.68
2 to 36	1 1/2	1 23/64	1.61	12 to 36	†10	3 1/16	109.01
2 1/2 to 36	2	1 1/2	2.13	....	..	...	......

Full Size

Nominal Size Run Pipe In.	Outlet Size In.	*Height In.	Each	Nominal Size Run Pipe In.	Outlet Size In.	*Height In.	Each
1/2	1/2	55/64	$.81	2 1/2	2 1/2	1 13/16	$3.23
3/4	3/4	1 3/64	.93	3	3	2	4.28
1	1	1 5/32	1.09	3 1/2	3 1/2	2 1/16	9.49
1 1/4	1 1/4	1 11/64	1.37	4	4	2 3/16	10.69
1 1/2	1 1/2	1 9/32	1.61	5	†5	2 7/16	21.40
2	2	1 5/16	2.13	6	†6	2 9/16	42.80

ThredOlets

Reducing Size

Nominal Size Run Pipe Inches	Outlet Size Inches	*Height Inches	Each	Nominal Size Run Pipe Inches	Outlet Size Inches	*Height Inches	Each
3/8 to 36	1/8	21/32	$.68	3 to 36	2 1/2	1 13/16	$2.79
3/8 to 36	1/4	21/32	.68	3 1/2 to 36	3	2	3.72
1/2 to 36	3/8	13/16	.68	4 to 36	3 1/2	2 1/8	8.25
3/4 to 36	1/2	63/64	.68	5 to 36	4	2 1/4	9.28
1 to 36	3/4	1 3/64	.81	6 to 36	5	2 5/8	18.57
1 1/4 to 36	1	1 9/32	.93	8 to 36	6	2 11/16	37.15
1 1/2 to 36	1 1/4	1 21/64	1.17	10 to 36	†8	2 3/4	72.68
2 to 36	1 1/2	1 23/64	1.41	12 to 36	†10	3 1/16	109.01
2 1/2 to 36	2	1 1/2	1.85	....	..	...	......

Full Size

Nominal Size Run Pipe In.	Outlet Size In.	*Height In.	Each	Nominal Size Run Pipe In.	Outlet Size In.	*Height In.	Each
1/2	1/2	31/32	$.68	3	3	2	$3.72
3/4	3/4	1 7/64	.81	3 1/2	3 1/2	2 1/16	8.25
1	1	1 7/32	.93	4	4	2 3/16	9.28
1 1/4	1 1/4	1 9/32	1.17	5	†5	2 7/16	18.57
1 1/2	1 1/2	1 11/32	1.41	6	†6	2 9/16	37.15
2	2	1 11/32	1.85	8	†8	2 3/4	72.68
2 1/2	2 1/2	1 13/16	2.79	10	†10	3	109.01

Larger sizes on application.

*Indicates height from top of the curve of the main pipe to the extreme top of fittings.

†Made from carbon steel castings, conforming to ASTM specification A216. Grades WCA and WCB available from stock at same price.

Vogt Drop Forged Screwed Fittings

Carbon Steel

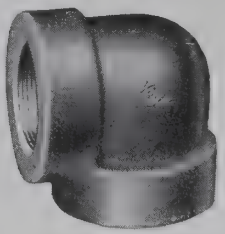
2000 Pounds: 2000 Pounds Cold Non-Shock
585 Pounds at 900°F.
3000 Pounds: 3000 Pounds Cold Non-Shock
875 Pounds at 900°F.
6000 Pounds: 6000 Pounds Cold Non-Shock
1750 Pounds at 900°F.

1% Chromium—½% Molybdenum Steel, Grade F2

2000 Pounds: 2000 Pounds Cold Non-Shock
775 Pounds at 1000°F.
3000 Pounds: 3000 Pounds Cold Non-Shock
1100 Pounds at 1000°F.
6000 Pounds: 6000 Pounds Cold Non-Shock
2075 Pounds at 1000°F.

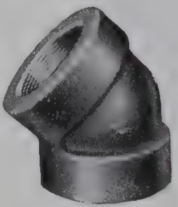
Fittings are machined from solid forgings. **When ordering,** specify fittings by numbers. Reducing fittings or fittings with A.P.I. threads can be furnished.

*90° Ells



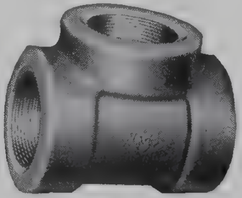
	Number					
	Carbon Steel			1% Ch. ½% Moly. Steel		
Size Inches	2000-Pounds	3000-Pounds	6000-Pounds	2000-Pound	3000-Pound	6000-Pound
⅛	259	229	1299	259-F2	229-F2	1299-F2
¼	260	230	1300	260-F2	230-F2	1300-F2
⅜	261	231	1301	261-F2	231-F2	1301-F2
½	262	232	1302	262-F2	232-F2	1302-F2
¾	263	233	1303	263-F2	233-F2	1303-F2
1	264	234	1304	264-F2	234-F2	1304-F2
1¼	265	235	1305	265-F2	235-F2	1305-F2
1½	266	236	1306	266-F2	236-F2	1306-F2
2	267	237	1307	267-F2	237-F2	....
2½	268	238	1308	......	......	....
3	269	239	1309	......	......	....
3½	...	240	1310	......	......	....
4	...	241	....	......	......	....
6	...	242	....	......	......	....

*45° Ells



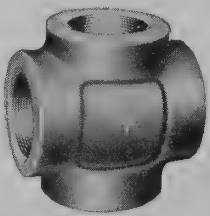
	Number					
	Carbon Steel			1% Ch. ½% Moly. Steel		
Size Inches	2000-Pound	3000-Pound	6000-Pound	2000-Pound	3000-Pound	6000-Pound
⅛	1280	2000	2024	1280-F2	2000-F2	2024-F2
¼	1281	2001	2025	1281-F2	2001-F2	2025-F2
⅜	1282	2002	2026	1282-F2	2002-F2	2026-F2
½	1283	2003	2027	1283-F2	2003-F2	2027-F2
¾	1284	2004	2028	1284-F2	2004-F2	2028-F2
1	1285	2005	2029	1285-F2	2005-F2	2029-F2
1¼	1286	2006	2030	1286-F2	2006-F2	2030-F2
1½	1287	2007	2031	1287-F2	2007-F2	2031-F2
2	1288	2008	2032	1288-F2	2008-F2	....
2½	1289	2009	2033	....	....	....
3	1290	2010	2034	....	....	....
3½	....	2011	2035	....	....	....
4	....	2012	....	....	....	....

*Tees



⅛	273	243	1399	273-F2	243-F2	1399-F 2
¼	274	244	1400	274-F2	244-F2	1400-F 2
⅜	275	245	1401	275-F2	245-F2	1401-F 2
½	276	246	1402	276-F2	246-F2	1402-F 2
¾	277	247	1403	277-F2	247-F2	1403-F 2
1	278	248	1404	278-F2	248-F2	1404-F 2
1¼	279	249	1405	279-F2	249-F2	1405-F 2
1½	280	250	1406	280-F2	250-F2	1406-F 2
2	281	251	1407	281-F2	251-F2	....
2½	282	252	1408	......	......	....
3	283	253	1409	......	......	....
3½	...	254	1410	......	......	....
4	...	255	....	......	......	....
6	...	256	....	......	......	....

*Crosses



⅛	1189	1899	2199	1189-F2	1899-F2	2199-F2
¼	1190	1900	2200	1190-F2	1900-F2	2200-F2
⅜	1191	1901	2201	1191-F2	1901-F2	2201-F2
½	1192	1902	2202	1192-F2	1902-F2	2202-F2
¾	1193	1903	2203	1193-F2	1903-F2	2203-F2
1	1194	1904	2204	1194-F2	1904-F2	2204-F2
1¼	1195	1905	2205	1195-F2	1905-F2	2205-F2
1½	1196	1906	2206	1196-F2	1906-F2	2206-F2
2	1197	1907	2207	1197-F2	1907-F2	.....
2½	1198	1908	2208	....	....	....
3	1199	1909	2209	....	....	....
3½	....	1910	2210	....	....	....
4	....	1911	....	....	....	....

45° Laterals

Carbon Steel Only

2000 3000 Pounds Service
3000 Pounds Cold Non-Shock
875 Pounds at 900°F.

6000 Pounds Service
6000 Pounds Cold Non-Shock
1750 Pounds at 900°F.

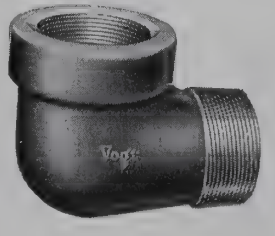
	Number	
Size Inches	2000-3000-Pound	6000-Pound
⅜	....	4892
½	4823	4893
¾	4824	4894
1	4825	4895
1¼	4826	4896
1½	4827	4897
2	4828	4898
2½	4829	....

Street Ells

Carbon Steel Only

2000 3000 Pounds Service
3000 Pounds Cold Non-Shock
875 Pounds at 900°F.

6000 Pounds Service
6000 Pounds Cold Non-Shock
1750 Pounds at 900°F.

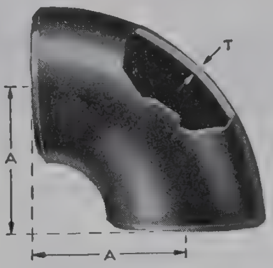


	Number	
Size Inches	2000-3000-Pound	6000-Pound
⅛	1800	....
¼	1801	1261
⅜	1802	1262
½	1803	1263
¾	1804	1264
1	1805	1265
1¼	1806	1266
1½	1807	1267
2	1808	....

*Also available galvanized or in 4–6 per cent chrome-molybdenum steel, Grade F5 and 18-8 stainless steel, Grade F8.

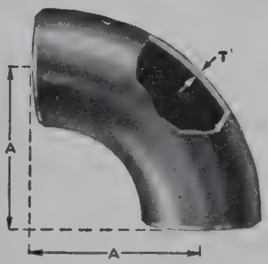
Walworth Seamless Steel Welding Fittings

90° Welding Elbows—Short Radius



		No. 5170 Standard		No. 5170A Extra Strong	
Nominal Iron Pipe Size Inches	A Dimen., Center to End Inches	Each	Approx. Weight Pounds Each	Each	Approx. Weight Pounds Each
1	1	$1.20	¼	......	.....
1¼	1¼	1.40	⅜	......	.....
1½	1½	1.70	½	$2.15	¾
2	2	2.10	1	2.65	1½
2½	2½	3.40	2⅛	4.25	3
3	3	4.90	3	6.15	4
3½	3½	6.35	4½	7.95	6
4	4	7.65	6¾	9.55	8½
5	5	10.85	9¾	13.55	14
6	6	15.80	18	19.75	23
8	8	30.00	34	37.50	50
10	10	53.40	58	67.00	70
12	12	80.70	80	101.00	109
14	14	120.00	105	150.00	140
16	16	175.00	132	219.00	174
18	18	235.00	167	294.00	219
20	20	270.00	210	340.00	275
24	24	340.00	298	410.00	392

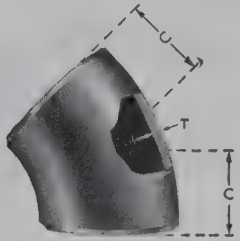
90° Welding Elbows—Long Radius



		No. 5171 Standard		No. 5171A Extra Strong	
Nominal Iron Pipe Size Inches	A Dimen., Center to End Inches	Each	Approx. Weight Pounds Each	Each	Approx. Weight Pounds Each
¾	1⅛	$1.00	¼	$1.50	⅜
1	1½	1.20	⅜	1.50	½
1¼	1⅞	1.40	½	1.75	¾
1½	2¼	1.70	¾	2.15	1½
2	3	2.10	1¾	2.65	2
2½	3¾	3.40	3½	4.25	4
3	4½	4.90	5	6.15	6½
3½	5¼	6.35	7	7.95	9
4	6	7.65	9¼	9.55	13
5	7½	10.85	16	13.55	22
6	9	15.80	25	19.75	35
8	12	30.00	50	37.50	76
10	15	53.40	86	67.00	119
12	18	80.70	130	101.00	165
14	21	120.00	160	150.00	210
16	24	175.00	215	219.00	275
18	27	235.00	275	294.00	375
20	30	270.00	350	340.00	440
24	36	340.00	500	410.00	620
26	39	......	550	......	730
30	45	......	734	......	974

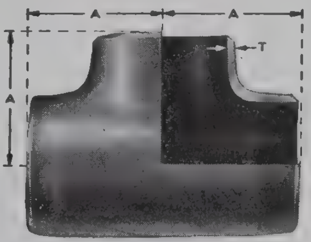
Walworth Seamless Steel Welding Fittings

45° Welding Elbows



		No. 5172 Standard		No. 5168 Extra Strong	
Nominal Iron Pipe Size Inches	C Dimen., Center to End Inches	Each	Approx. Weight Pounds Each	Each	Approx. Weight Pounds Each
¾	9/16	$.90	⅛	......	......
1	⅞	1.08	⅛	$1.35	¼
1¼	1	1.26	¼	1.60	⅜
1½	1⅛	1.53	⅓	1.95	½
2	1⅜	1.90	1	2.40	1½
2½	1¾	3.05	1½	3.80	2
3	2	4.40	2½	5.55	3¼
3½	2¼	5.70	3½	7.15	4½
4	2½	6.90	5	8.60	6½
5	3⅛	9.80	8	12.20	11
6	3¾	14.25	12	17.80	17
8	5	27.00	25	33.75	34
10	6¼	48.00	41	60.50	54
12	7½	72.75	65	91.00	74
14	8¾	108.00	82	135.00	105
16	10	158.00	103	197.00	138
18	11¼	212.00	130	265.00	175
20	12½	245.00	163	310.00	215
24	15	315.00	233	370.00	310
26	16⅛	......	275	......	364
30	18⅝	......	367	......	486

Welding Tees—Full Branch

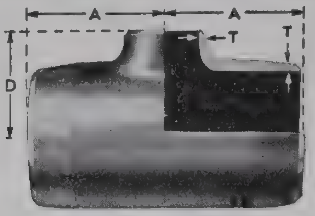


		No. 5173 Standard		No. 5173A Extra Strong	
Nominal Iron Pipe Size Inches	A Dimen., Center to End Inches	Each	Approx. Weight Pounds Each	Each	Approx. Weight Pounds Each
¾	1⅛	$2.15	½	$2.15	¾
1	1½	2.15	¾	2.15	⅞
1¼	1⅞	2.90	1¼	2.90	1⅜
1½	2¼	3.65	1¾	3.65	2
2	2½	5.00	3¼	5.00	4
2½	3	7.30	6	7.30	6
3	3⅜	9.50	7	12.00	9
3½	3¾	12.50	10	16.00	12
4	4⅛	13.00	14	17.00	17
5	4⅞	24.00	21	30.00	28
6	5⅝	28.00	35	35.00	41
8	7	45.00	63	58.00	78
10	8½	76.00	100	97.00	128
12	10	110.00	165	135.00	185
14	11	165.00	210	205.00	280
16	12	200.00	245	255.00	320
18	13½	......	300	......	397
20	15	......	372	......	492
24	17	......	512	......	680

Information for dimension T is given on one of the following pages.

Walworth Seamless Steel Welding Fittings

Welding Tees—Reducing on Branch

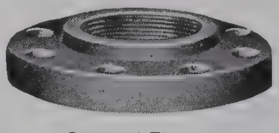


Nominal Iron Pipe Size Inches	A Dimen. C. to E. of Run Inches	D Dimen. C. to E. of Branch Inches	No. 5174 Standard		No. 5174A Extra Strong	
			Each	Approx. Weight Pounds Each	Each	Approx. Weight Pounds Each
1 x 1 x ¾	1½	1½	$2.70	¾	$2.70	¾
½	1½	1½	2.70	¾	2.70	¾
1¼x 1¼x 1	1⅞	1⅞	3.60	1¼	3.60	1⅜
¾	1⅞	1⅞	3.60	1¼	3.60	1⅜
½	1⅞	1⅞	3.60	1¼	3.60	1⅜
1½x 1½x 1¼	2¼	2¼	4.55	1¾	4.55	2
1	2¼	2¼	4.55	1¾	4.55	2
¾	2¼	2¼	4.55	1¾	4.55	2
2 x 2 x 1½	2½	2⅜	6.25	3¼	6.25	4
1¼	2½	2¼	6.25	3¼	6.25	4
1	2½	2	6.25	3¼	6.25	3½
2½x 2½x 2	3	2¾	9.10	6	9.10	6
1½	3	2⅝	9.10	6	9.10	6
1¼	3	2½	9.10	5	9.10	5
1	3	2¼	9.10	5	9.10	5
3 x 3 x 2½	3⅜	3¼	11.85	7	15.00	9
2	3⅜	3	11.85	7	15.00	9
1½	3⅜	2⅞	11.85	7	15.00	8
1¼	3⅜	2¾	11.85	6	15.00	8
1	3⅜	. . .	11.85	6	15.00	7
¾	3⅜	. . .	11.85	6	15.00	7
3½x 3½x 3	3¾	3⅝	15.60	10	20.00	12
2½	3¾	3½	15.60	10	20.00	12
2	3¾	3¼	15.60	9	20.00	10
1½	3¾	3⅛	15.60	9	20.00	10
1¼	3¾	. . .	15.60	8	20.00	9
4 x 4 x 3½	4⅛	4	16.25	14	21.25	17
3	4⅛	3⅞	16.25	14	21.25	17
2½	4⅛	3¾	16.25	13	21.25	15
2	4⅛	3½	16.25	13	21.25	15
1½	4⅛	3⅜	16.25	12	21.25	14
5 x 5 x 4	4⅞	4⅝	30.00	21	37.50	28
3½	4⅞	4½	30.00	21	37.50	28
3	4⅞	4⅜	30.00	20	37.50	25
2½	4⅞	4¼	30.00	20	37.50	25
2	4⅞	4⅛	30.00	19	37.50	22
6 x 6 x 5	5⅝	5⅜	35.00	35	43.75	41
4	5⅝	5⅛	35.00	35	43.75	41
3½	5⅝	5	35.00	32	43.75	37
3	5⅝	4⅞	35.00	32	43.75	37
2½	5⅝	4¾	35.00	30	43.75	34
8 x 8 x 6	7	6⅝	56.25	63	72.50	78
5	7	6⅜	56.25	63	72.50	76
4	7	6⅛	56.25	60	72.50	72
3½	7	6	56.25	60	72.50	72
3	7	. . .	56.25	56	72.50	70
10 x 10 x 8	8½	8	95.00	100	120.00	128
6	8½	7⅝	95.00	100	120.00	125
5	8½	7½	95.00	90	120.00	122
4	8½	7¼	95.00	90	120.00	115
12 x 12 x10	10	9½	137.50	165	168.00	185
8	10	9	137.50	165	168.00	180
6	10	8⅝	137.50	158	168.00	175
5	10	8½	137.50	158	168.00	170
4	10	. . . .	137.50	150	168.00	170
14 x 14 x12	11	10⅝	165.00	210	205.00	280
10	11	10⅛	165.00	210	205.00	273
8	11	9⅝	165.00	200	205.00	264
6	11	9¼	165.00	200	205.00	264
16 x 16 x14	12	12	200.00	245	255.00	320
12	12	11⅝	200.00	245	255.00	312
10	12	11⅛	200.00	236	255.00	312
8	12	10⅝	200.00	236	255.00	305
6	12	10¼	200.00	227	255.00	305

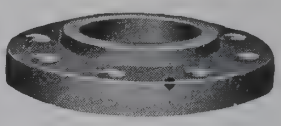
Tees reducing on run also available; prices on request.

Forged Steel Companion Flanges

Lap, Screwed or Slip-On Welding Type



Screwed Flange



Slip-on Flange

Companion flanges are furnished faced, drilled and spot-faced or back-faced.

Nominal Pipe Size Inches	American Standard					
	*150 Pound Each	*300 Pound Each	†**400 Pound Each	†600 Pound Each	†‡900 Pound Each	§†1500 Pound Each
½	$8.00	$8.00	. . . . .	$9.50	. . . . .	$14.00
¾	8.00	8.00	. . . . .	9.50	. . . . .	14.00
1	8.00	8.00	. . . . .	10.00	. . . . .	14.00
1¼	9.00	9.00	. . . . .	10.75	. . . . .	14.00
1½	10.00	10.00	. . . . .	11.75	. . . . .	16.00
2	11.00	11.00	. . . . .	13.00	. . . . .	22.00
2½	13.00	13.00	. . . . .	15.00	. . . . .	29.00
3	15.00	15.00	. . . . .	18.50	$29.00	38.00
3½	19.00	19.00	. . . . .	22.50	. . . . .	. . . . .
4	20.00	20.00	$20.00	33.00	51.00	60.00
5	24.00	24.00	24.00	46.00	71.00	105.00
6	27.00	27.00	27.00	55.00	86.00	132.00
8	35.00	35.00	35.00	80.00	155.00	220.00
10	48.00	48.00	48.00	125.00	225.00	365.00
12	60.00	60.00	60.00	150.00	300.00	550.00
14	80.00	80.00	80.00	180.00	380.00	. . . . . .
16	100.00	100.00	100.00	240.00	460.00	. . . . . .
18	125.00	125.00	125.00	300.00	650.00	. . . . . .
20	150.00	150.00	150.00	360.00	795.00	. . . . . .
24	240.00	240.00	240.00	540.00	1500.00	. . . . . .

*With raised face 1/16 inch high.
†With raised face ¼ inch high.
**For sizes 3½-inch and smaller, use 600-pound standard.
‡For sizes 2½-inch and smaller, use 1500-pound standard.
§For sizes 14-inch and larger, prices upon application.

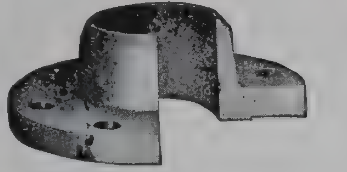
Forged Steel Blind Flanges

Blind flanges are furnished faced, drilled, and spot-faced or back-faced.

Nominal Pipe Size Inches	American Standard					
	*150 Pound Each	*300 Pound Each	†**400 Pound Each	†600 Pound Each	†‡900 Pound Each	§†1500 Pound Each
½	$11.50	$11.50	. . . . .	$11.50	. . . . .	$17.00
¾	11.50	11.50	. . . . .	11.50	. . . . .	17.00
1	11.50	11.50	. . . . .	11.50	. . . . .	17.00
1¼	11.50	11.50	. . . . .	11.50	. . . . .	17.00
1½	11.50	11.50	. . . .	11.50	. . . . .	19.00
2	12.60	12.60	. . . . .	12.60	. . . . .	27.00
2½	14.70	14.70	. . . . .	14.70	. . . . .	35.00
3	17.05	17.05	. . . . .	17.05	$35.00	46.00
3½	21.65	21.65	. . . . .	21.65	. . . . .	. . . . .
4	23.70	23.70	$23.70	40.00	62.00	72.00
5	28.20	28.20	28.20	56.00	85.00	125.00
6	31.60	31.60	31.60	66.00	104.00	160.00
8	42.00	42.00	42.00	96.00	190.00	265.00
10	58.00	58.00	58.00	150.00	270.00	440.00
12	76.00	76.00	76.00	180.00	360.00	660.00
14	126.00	126.00	126.00	216.00	455.00	. . . . . .
16	147.00	147.00	147.00	288.00	555.00	. . . . . .
18	210.00	210.00	210.00	360.00	780.00	. . . . . .
20	252.00	252.00	252.00	432.00	955.00	. . . . . .
24	320.00	320.00	320.00	648.00	1800.00	. . . . . .

*With raised face 1/16 inch high.
†With raised face ¼ inch high.
**For sizes 3½-inch and smaller, use 600-pound standard.
‡For sizes 2½-inch and smaller, use 1500-pound standard.
§For sizes 14-inch and larger, prices upon application.

Forged Steel Welding Neck Flanges



Faced, drilled, bored, and spot-faced or back-faced; with hubs machine beveled for butt welding.

Unless otherwise specified 150 and 300- pound flanges bored to I.D. of std. pipe.

Nominal Pipe Size Inches	American Standard *150 Pound Each	*300 Pound Each	†**400 Pound Each	†600 Pound Each	‡†900 Pound Each	§†1500 Pound Each
½	$11.00	$11.00	.....	$16.30	.....	$27.00
¾	11.00	11.00	.....	16.30	.....	27.00
1	11.00	11.00	.....	16.30	.....	27.00
1¼	11.00	11.00	.....	16.30	.....	27.00
1½	11.00	11.00	.....	16.30	.....	27.00
2	11.00	11.00	.....	16.30	.....	27.00
2½	13.00	13.00	.....	19.00	.....	35.00
3	15.00	15.00	.....	23.00	$35.00	46.00
3½	19.00	19.00	.....	29.00	.....	.....
4	20.00	20.00	$20.00	39.00	62.00	72.00
5	24.00	24.00	24.00	53.50	85.00	125.00
6	27.00	27.00	27.00	63.50	104.00	160.00
8	44.00	44.00	44.00	90.00	190.00	265.00
10	62.00	62.00	62.00	138.00	270.00	440.00
12	96.00	96.00	96.00	188.00	360.00	660.00
14	130.00	130.00	130.00	200.00	560.00	......
16	165.00	165.00	165.00	270.00	690.00	......
18	220.00	220.00	220.00	330.00	925.00	......
20	290.00	290.00	290.00	400.00	1160.00	......
24	380.00	380.00	380.00	590.00	2100.00	......

*With raised face: *1/16 inch high. †¼-inch high.

**For sizes 3½-inch and smaller, use 600-pound standard.

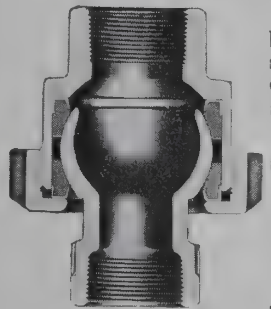
‡For sizes 2½-inch and smaller, use 1500-pound standard.

§For sizes 14-inch and larger, prices upon application.

For reducing sizes, use flange O.D., triple list to 12 inches, 14 inches and up upon request.

Barco Flexible Ball Joints

For Air, Oil, Steam, and Other Fluids



Style 7-8 Ball Joint
Sizes ¼ to 6 In.

Available in malleable iron, bronze, steel, aluminum or stainless steel, and may be equipped with a choice of gaskets depending on service requirements.

Standard Series for 300-lb. steam and up to 2000 psi. hydraulic. Up to 425°F.

Series 600 for 600-lb. steam and up to 5000 psi. hydraulic. Up to 750°F. in steel.

Series 2500 for 750-lb steam and 7500 psi. hydraulic. Up to 1000°F.

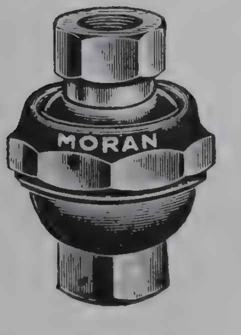
Other styles are 7A-8, 7-8B single elbow, 7A-8B double elbow, 7F-8F flanged style in 4 and 6-in. sizes. Male threads also available.

No. 1 Moran Cast Iron Flexible Joints

Straight Pattern

Screwed Ends

For 150 Pounds Steam Air or Gas Pressure

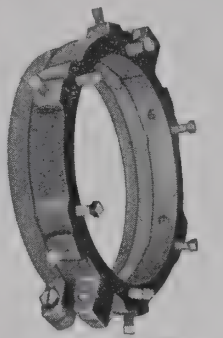


This flexible joint is tight under ¼-pound pressure.

Size Inches	Each	Size Inches	Each
¼	$6.90	3	$35.10
⅜	6.90	4	41.80
½	7.48	5	.....
¾	8.63	6	.....
1	9.78	8	.....
1¼	12.08	10	.....
1½	13.80	12	.....
2	18.98	14	.....
2½	23.00	16	.....

Also available with flanged ends.

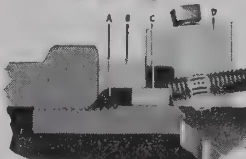
Model JC Skinner-Seal Pipe Joint Clamps



For stopping leaks at joints where pipe is screwed into fitting. Effective on steam, oil, gas, ammonia, and brine leaks. Used by oil refineries on pressures up to 2000 pounds to the sq. in.

Made of malleable iron. When used on extremely high temperatures specify so proper gasket is sent.

Cross section shows how gasket is forced directly into threads, stopping leak at source for permanent repair. A, gasket; B, gasket container ring; C, sliding push ring; D, stationary main ring.



For special screwed fittings (lipped for lead, recessed, or cast iron) specify special joint clamp.

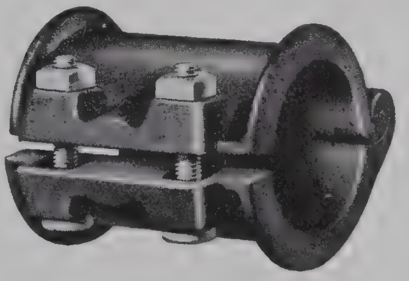
Wrench furnished with each clamp from 2 inches up.

I.D. Pipe In.	Cross Section Each	Wt. Lb.	I.D. Pipe In.	Each	Wt. Lb.	I.D. Pipe In.	Each	Wt. Lb.
½	$6.60	1	6 O.D.	$14.50	8¼	12 O.D.	$34.20	19
¾	6.65	1	6	13.95	8	12	33.80	19
1	6.70	1¼	*6⅝	19.15	7½	*12½	42.50	17¾
1¼	6.85	2½	7 O.D.	19.15	7½	13 O.D.	42.50	17¾
1½	7.10	2½	7	21.30	7¾	14 O.D.	49.90	20
2	7.30	2¾	8 O.D.	21.95	11½	15 O.D.	52.50	20½
2½	8.05	3⅛	8	22.10	13	16 O.D.	52.65	26¼
3	8.90	4½	9 O.D.	33.00	13½	17 O.D.	57.00	27¼
3½	10.15	5¼	9	33.00	12¾	18 O.D.	59.25	25½
4	9.95	6	10 O.D.	33.20	14½	20 O.D.	65.85	35
4½	13.50	5¼	10	32.90	14½	22 O.D.	80.45	37
5	13.70	6	11 O.D.	34.20	15	24 O.D.	95.10	56¾
*5 3/16	13.70	6	11	34.20	17¾	....	.....	....

*Casing.

Skinner-Seal Emergency Pipe Clamps

For stopping leaks in pipe lines. Malleable iron cylinder, halved, hinged along one side, and fitted with bolts on other. A gasket completes clamp. By concentration of pressure on leak, this clamp makes a permanent repair.



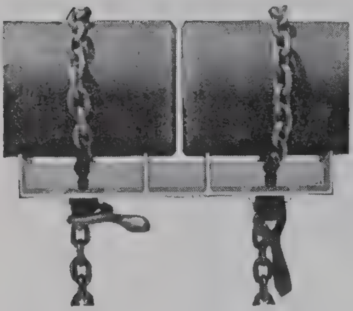
For larger sizes of pipe, clamps are reinforced with heavy ribs. Enameled to resist rust. Furnished with gaskets and electro-plated bolts. Specify when O.D. or cast iron pipe sizes. Sizes ½ to 2-inch, packed 12 in a carton; sizes 2½ to 4-inch, 6 in a carton.

Size Pipe I.D. In.	Lgth. Over-all In.	O.D. In.	No. Bolts	Wt. Lb.	Each	Size Pipe I.D. In.	Lgth. Over-all In.	O.D. In.	No. Bolts	Wt. Lb.	Each
½	3¼	..	2	1¼	$1.02	† 6¼	8	..	3	17⅝	$10.40
¾	3¼	..	2	1½	1.14	* 6	8	...	3	16⅛	10.55
1	3½	..	2	1¾	1.30	† 6⅝	8	7	3	16⅛	10.55
1¼	3¾	..	2	2⅝	1.55	7	8⅞	..	3	21⅜	15.50
1½	4	..	2	3	1.80	† 7⅝	9½	8	3	24⅛	15.90
2	4¼	..	2	3¾	1.95	8	9⅞	..	3	30¼	17.30
2½	4½	..	2	4½	2.75	† 8¼	9⅞	..	3	30¼	17.30
3	4¾	..	2	5¾	3.35	* 8	9¾	..	3	30½	18.50
*3	5⅜	..	2	6⅞	4.20	† 8⅝	9¾	9	3	30½	18.50
3½	5⅜	..	2	6⅞	4.20	9	10⅛	..	3	37	24.25
4	6	..	2	9⅞	5.25	10	11⅞	..	4	46¼	25.05
*4	6½	..	3	10⅞	6.60	*10	12	..	4	51	28.70
4½	6½	..	3	10⅞	6.60	†10⅝	12	11	4	51	28.70
5	7⅛	..	3	14½	8.40	12	12	..	4	58⅝	31.50
†5 3/16	7⅛	..	3	14½	8.40	*12	12	..	4	61¼	32.25
†5⅝	8	6	3	13	9.95	†12½	12	13	4	61¼	32.25
6	8	..	3	17⅝	10.40	.....	....	..	..	....	.....

*Cast iron. †Casing.

JEWEL CLAMPS STOCKED IN SOUTH BEND ONLY

Jewel Pipe Clamps

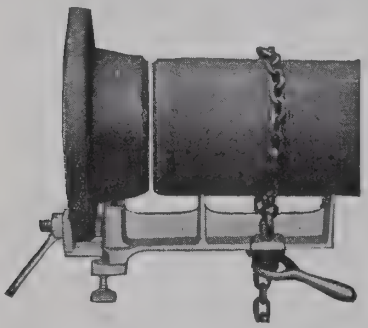


This clamp lines the pipe perfectly and holds it there until it is welded. Permits the economical erection of straight pipe lines in their permanent position, completed with the exception of the weld.

Rigidly constructed resists strain, heat and abuse.

No.	1	2
Size.....inches	½ to 8	8 to 16
Each	$9.50	24.00
Shipping Weight.....pounds	15	45

Jewel Flange Clamps



This clamp lines the face of welding neck flanges at perfect right angles to the pipe, squared both ways, and holds it there until it is tacked.

Light, fast and accurate; nothing to level and nothing to square.

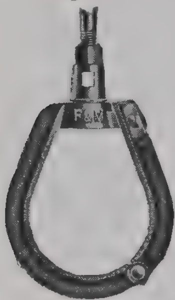
Takes standard and extra heavy flanges.

No.	4	6
Size.....inches	2½ to 8	8 to 16
Each	$22.50	48.00
Shipping Weight.....pounds	15	50

No. 199 F&M Malleable Iron Swivel Pipe Hangers

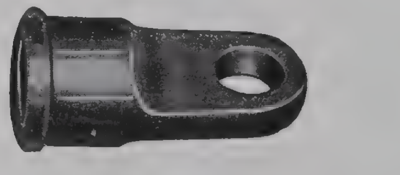
With Adjustable Split Ring

Provides 1 to 4 inches of vertical adjustment after the pipe is in place, and an inspection slot insures adequate bearing on the hanger rod. Furnished black.



Pipe Size In.	Per 100	Bolt Thrd. In.	Wt. Lb. per 100
¾	$61.74	⅜	25
1	64.76	⅜	25
1¼	69.22	⅜	28
1½	78.15	⅜	31
2	87.19	⅜	38
2½	100.21	½	94
3	115.25	½	106
3½	157.00	½	125
4	184.88	⅝	156
5	257.04	⅝	275
6	325.92	¾	312
8	560.28	⅞	450

Grabler Malleable Iron Sockets



	No. 90 Pipe Thread			No. 90A Bolt Thread		
Size No.	Per 100	Size Pipe Thread Inches	Size Bolt Eye Inches	Per 100	Size Bolt Thread Inches	Size Bolt Eye Inches
1	$6.50	⅛	¼	$6.50	⅜	¼
2	7.00	¼	5/16	7.00	7/16	5/16
3	8.50	⅜	⅜	7.00	½	5/16
4	13.00	½	½	8.50	⅝	⅜
5	18.00	¾	⅝	13.00	¾	½

No. 2 Crawford Standard Steel Rings and Bolts

Used with perforated extension bars or sockets.

Regularly furnished black. Can be furnished galvanized or copper plated.

Pipe Size In.	Size of Stock Width In.	Size of Stock Thick. Gage	Bolt Size In.	Wt. Lb. per 100	Pipe Size In.	Size of Stock Width In.	Size of Stock Thick Gage	Bolt Size In.	Wt. Lb. per 100
½	¾	16	¼	7½	3½	1⅛	12	¼	71
¾	¾	16	¼	8½	4	1¼	12	¼	78
1	⅞	16	¼	15½	5	1¼	12	5/16	96
1¼	⅞	16	¼	17½	6	1¼	12	5/16	111
1½	1	15	¼	18½	8	1¼	3/16"	⅜	250
2	1	15	¼	22	10	1¼	3/16"	⅜	300
2½	1⅛	12	¼	53½	12	1¼	3/16"	⅜	350
3	1⅛	12	¼	64	....	...	...	..	...

No. 317 Malleable Iron Hinge Hangers

With Bolt

Pipe Size In.	No. 317 Hanger Only Per 100	No. 317 Hanger Only Size Bolt	With Socket No. 90 Pipe Thread Per 100	With Socket No. 90 Pipe Thread Size Thread	With Socket No. 90 Bolt Thread Per 100	With Socket No. 90 Bolt Thread Size Thrd.
½	$15.00	¼	$21.50	⅛	$21.50	⅜
¾	17.00	¼	23.50	⅛	23.50	⅜
1	18.00	¼	24.50	⅛	24.50	⅜
1¼	20.00	¼	27.00	¼	27.00	⅜
1½	23.00	¼	30.00	¼	30.00	⅜
2	25.00	¼	32.00	¼	32.00	⅜
2½	32.00	5/16	39.00	¼	39.00	½
3	38.00	5/16	45.00	¼	45.00	½
3½	45.00	5/16	53.50	⅜	53.50	½
4	55.00	5/16	63.50	⅜	63.50	⅝
5	75.00	5/16	88.00	½	88.00	⅝
6	90.00	5/16	103.00	½	103.00	¾
8	160.00	½	173.00	½	173.00	⅞
10	300.00	½	318.00	¾	318.00	⅞

Order by number and pipe size. State pipe or bolt thread if No. 90 Sockets required.

No. 318 Malleable Iron Hinge Hangers

With Socket and Threaded Lag Screw

Pipe Size In.	Per 100	Socket No. 90 Pipe Size In.	Lag Screw No. 20 Size In.
½	$28.00	⅛	⅜x3½
¾	30.00	⅛	⅜x3½
1	31.00	⅛	⅜x3½
1¼	35.00	¼	½x4
1½	38.00	¼	½x4
2	40.00	¼	½x4
2½	47.00	¼	½x4
3	53.00	¼	½x4
3½	63.50	⅜	⅝x5
4	73.50	⅜	⅝x5
5	103.00	½	⅝x5
6	118.00	½	⅝x5
8	188.00	½	⅝x5
10	333.00	¾	....

No. 304 F&M Iron Extension Pipe Hangers

Tapped for ¼-inch I.P. only.

Size Pipe In.	Black per 100	Galv. per 100	Size Pipe In.	Black per 100	Galv. per 100
⅜	$26.81	$31.84	2	$83.83	$99.46
½	28.48	34.02	2½	183.96	192.11
¾	31.84	35.36	3	192.78	194.88
1	33.52	38.64	3½	210.00	218.40
1¼	41.92	49.64	4	226.80	235.20
1½	61.99	74.51	...	......	......

Round Iron for Hangers

Can be furnished in stock sizes and lengths.

Prices upon application.

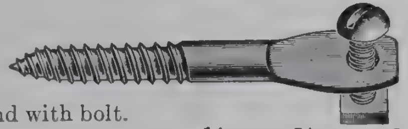
No. 97 Grabler Clevis Hangers

Listed by Underwriters' Laboratories

To be suspended by a rod and nut. By using a rod with a 2½-inch thread and a nut on each side of the upper section, the hanger may be adjusted 1½ inches vertically and locked in position.

Size Pipe In.	Per 100	—Dimensions, Inches— Top Section	Bottom Section	Cross Bolt In.	Diam. of Supporting Rod Inches
¾	......	1⅛x10g	1⅛x10g	⅜x 2	⅜
1	......	1⅛x10g	1⅛x10g	⅜x 2¼	⅜
1¼	......	1¼x3/16	1¼x3/16	⅜x 2¾	⅜
1½	......	1¼x3/16	1¼x3/16	⅜x 3	⅜
2	......	1¼x3/16	1¼x3/16	⅜x 3½	⅜
2½	......	1¼x3/16	1¼x3/16	⅜x 4	½
3	......	1½x3/16	1½x3/16	½x 4¾	½
3½	......	1½x3/16	1½x3/16	½x 5¼	½
4	......	1½x¼	1½x3/16	½x 5¾	⅝
5	......	1½x¼	1½x3/16	½x 7	⅝
6	......	1½x⅜	1½x¼	½x 8¼	¾
8	......	2 x⅜	2 x¼	⅝x10½	⅞
10	......	2 x½	2 x⅜	¾x13	⅞
12	......	2 x½	2 x⅜	¾x15	⅞
14 O.D.	......	2 x½	2 x⅜	¾x16¼	1

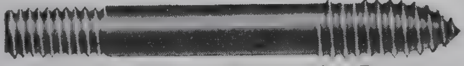
Gimlet Pointed Lag Screws



Flat end with bolt.

Size............inches	¼x3	5/16x3	⅜x4	½x5
Per 100................	$8.52	10.65	12.77	18.45
For Hangers.....inches	½ to 1½	2 to 3	3½ to 6	7 to 8

F&M ⅜-Inch Steel Hanger Rods



No. 268-A, Gimlet Pointed One End

Length Rod Inches	No. 267-A Threaded Each End per 100	No. 267-B Threaded One End per 100	—Gimlet Pointed One End— No. 268-A With Machine Thread per 100	No. 268-B Without Machine Thread per 100
8	$15.66	$10.75	$14.45	$8.57
10	16.72	11.76	15.71	10.08
12	18.08	13.19	16.97	11.68
14	19.47	14.62	18.23	13.18
18	22.26	17.39	20.08	15.54
24	25.70	20.83	23.27	19.49
30	29.15	23.52	26.46	23.35
36	33.35	27.72	29.65	28.06

Can also be furnished threaded each end in sizes ½, ⅝, ¾, ⅞ and 1-in., and gimlet pointed one end in sizes ½, ⅝ and ¾-in. at additional cost.

Perforated Strap Iron

Size No....................	00	0	1	2	3	4
Width ....inches	¾	¾	⅞	1	1⅛	1¼
Gage No..................	18	16	16	14	12	12
No. of Feet.....per Bundle	250	250	250	250	250	100

No. F-2324 Chase Copper Perforated Hanger Strap

Width, ¾ inch.

Length Roll...ft.	25	50
No. F-2324...ea.	$5.40	10.45
Approx. Shipping Wt. ....lb.	2½	4

F & M Safe Load and Spacing Data on Pipe Hangers and Rod

Load Capacity of Steel Hanger Rod

A.S.T.M. Spec. A-107-42

Rod Size..............inches	⅜	½	⅝	¾	⅞
Safe Load at Rod Temperature:					
450°F..................lb.	610	1130	1810	2710	3370
750°F..................lb.	510	940	1510	2260	3150

Recommended Rod Size, As Determined by Pipe Size, for Hangers

Conforms to Underwriters' Laboratories requirements.

Pipe.................inches	¾–2	2½–3½	4–5	6	8–12
Hang on Rod............in.	⅜	½	⅝	¾	⅞

Recommended Maximum Spacing between Hangers

Based on deflection of horizontal standard pipe filled with water, concentration of valves, fittings, etc., will reduce allowable maximum spacing.

Pipe Size Inches	Spacing Feet	Weight, Pounds Per Foot Empty	Full of Water
1	7	1.68	20
1¼	8	2.24	29
1½	9	2.68	36
2	10	3.68	50
2½	11	5.82	78
3	12	7.62	106
3½	14	9.20	133
4	15	10.90	163
5	16	14.80	234
6	17	19.20	315
8	20	28.3	502
10	22	40.6	746
12	23	43.8	928

No. 51 Grabler Sectional Steel Hook Plates

This sectional steel hook plate is stronger, neater and easier to use than cast iron.

Furnished in long lengths; as many hooks as required can be easily cut at grooves shown.

Size of material: hook on 1 and 1¼-inch pipe sizes is 1 inch x No. 12 gage, on 1½ and 2-inch pipe sizes, 1⅛ inches x No. 10 gage. Size of material on back is 2 x ⅛ inch.

For Pipe Size.....inches	1	1¼	1½	2
No. 51..........per strip	$2.85	3.20	3.20	3.20
Ctr. to Ctr. of Pipe..in.	2½	3	3½	4½
No. of Hooks per Strip..	30	30	25	20

MANUFACTURERS' CATALOGS

We shall be glad to send Manufacturers' Catalogs and Other Available Publications and Data on request.

No. 150 Crawford Offset J Return Line Hooks

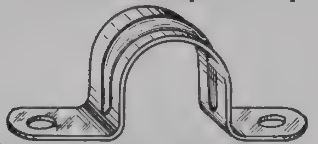
Provides a small offset for running return lines a short distance from wall.

Hole size, 9/16 inch. Center hole to center pipe, 5 inches. Offset size, 1 inch.

Larger sizes available on special order.

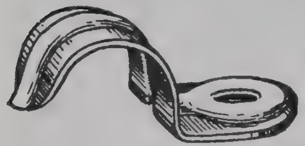
Pipe Size In.	Per 100	Stock Size Inches	Wt. Lb. per 100	Pipe Size In.	Per 100	Stock Size Inches	Wt. Lb. per 100
½	$22.70	¼x1¼	66	1½	$35.30	¼x1½	94
¾	25.25	¼x1¼	69	2	40.35	¼x1½	103
1	27.75	¼x1¼	72	2½	42.90	¼x1½	119
1¼	30.25	¼x1¼	75	3	45.40	¼x1½	131

Galvanized Pipe Straps



Size.......inches	¼	⅜	½	¾	1	1¼	1½	2
Per Pound.......	...	...	...	...	...	...	...	...
Approx. No. per Lb..	90	50	45	30	17	13	11	7

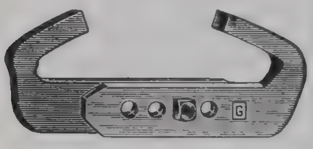
Acme 1-Hole Pipe Straps



For ½-In. Regular, 31 per Pound..per lb.	$.40
For ½-In. *TWC, 53 per Pound..per lb.	.44
For ¾-In. Reg., 19 per Pound..per lb.	.44
For Non-Metallic Sheathed Cable, 96 per Lb....per lb.	.50

*Thin wall conduit.

No. 22 Steel Drop-Forged I-Beam Clamps



Fits I-beams up to 8 in.

Size No.	Per 100	Wdth. Beam Flg., In.	For Pipe In.	Size Bolt In.
1	$24.50	6	½–1½	¼x1
2	27.50	6	2 –3	¼x1
3	32.50	6	3½–6	5/16x1¼
4	46.50	6	8	⅜x1½
4W	46.50	8	8	⅜x1½
5	60.00	8	10 & 12	½x1½

No. 40 Crawford Standard I-Beam Clamps and Bolts

Type 1—1¼x¼-Inch Steel with ⅜-Inch Bolt

Space allowed for ½-inch rod. Safe load, 1000 pounds.

I-Beam Flange..........in.	2	3	4	5	6	7	8
Per 100..................	$28.00	35.00	38.00	42.00	46.00	50.00	55.00
Wt. per 100............lb.	70	75	95	105	115	125	145

Type 2—1½x¼-Inch Steel with ½-Inch Bolt

Space allowed for ½-inch rod. Safe load, 1250 pounds.

I-Beam Flange..........in.	3	4	5	6	7	8
Per 100..................	$50.00	55.00	60.00	65.00	70.00	75.00
Wt. per 100............lb.	95	120	140	150	165	200

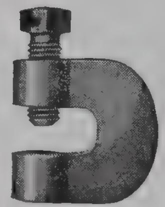
Type 3—1½x⅜-Inch Steel with ½-Inch Bolt

Space allowed for ⅝-inch rod. Safe load, 1500 pounds.

I-Beam Flange........in.	3	4	5	6	7	8
Per 100.................	$70.00	77.00	84.00	91.00	98.00	105.00
Wt. per 100...........lb.	160	195	215	230	235	250

Can be furnished to any specifications to order.

Globe I-Beam Clamps



Used on I-beams for special work on piping systems. Adjustable for various thicknesses of beams through the use of a hardened set screw which clamps to the beam.

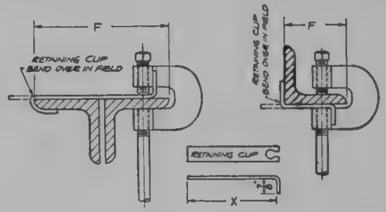
Made of tough, unbreakable steel, Nos. 250 and 251, 5/32-inch thick; Nos. 252 and 253, 3/16-inch thick.

Furnished with set-screws and threaded at the bottom to hold hangers. Bolts have hardened points.

Clamp is held tightly in place by use of retaining clips, which must be ordered separately.

No...............	250	251	252	253
Each.............	$.42	.48	.67	.73
Size Set-Screw...	⅜″–16x1½″	½″–13x1½″	⅝″–11x1½″	¾″–10x1½″
Diam. Hanger Rod.........in.	⅜	½	⅝	¾
Weight per 100 ....pounds	40	45	60	65

Globe I-Beam Clamp Retaining Clips

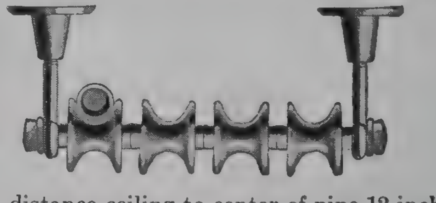


Used with I-beam clamps as illustrated. Fit flush with the beam and formed section with notched hole slips against I-beam clamp. They are bent over the beam, thus holding I-beam clamp in place.

Made of ⅛-inch thick band iron. To find the length retaining clip required, add ½ inch to the beam dimension F, which equals letter X.

No.	Each	Diam. Hanger Rod, In.	Length Inches	Width Inches	Wt. Lb. per 100
950	$.09	⅜	4½	1	20
951	.14	⅜	8	1	30
952	.15	⅜	10	1	40
953	.19	⅜	14	1	52½
956	.11	½	4½	1¼	22½
957	.15	½	8	1¼	37½
958	.17	½	10	1¼	45
959	.22	½	14	1¼	62½
962	.16	⅝, ¾	8	1⅜	40
963	.20	⅝, ¾	10	1⅜	50
964	.25	⅝, ¾	14	1⅜	72½
965	.13	⅝, ¾	4½	1⅜	22½

No. 106 Grabler Ceiling Coil Roller Hangers



Nominal distance ceiling to center of pipe 12 inches. Ceiling plate has 1½-inch adjustment. Hangers of ten rolls and over have three supports.

Pipe Size Inches	No. of Rolls	C. to C. of Pipe Inches
1	4,6,8,10	2½
1¼	4,6,8,10	3
1½	4,6,8,10	3½
2	4,6,8,10	4½

Prices on application.

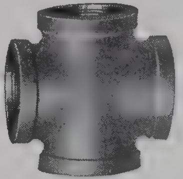
Standard Rough Brass Screwed Fittings

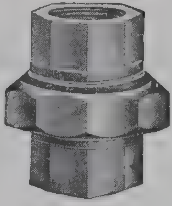
Flat Band—For 125 Pounds S.W.P.

No. 625
90° Elbow

No. 626
45° Elbow

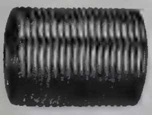
No. 627
Tee


No. 629
Cross


No. 655
Union

No. 658
Floor Flange

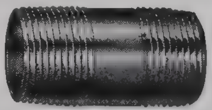
Size....inches	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Bushings, Hex. (Reducing 1 and 2 Sizes)..each	....	$.20	$.20	$.25	$.35	$.53	$.90	$1.15	$1.70	$3.40	$5.00	$11.00
Bushings, Hex. (Reducing 3 and 4 Sizes)..each	....	....	....	.30	.42	.64	1.08	1.40	2.05	4.10	6.00	13.00
Bushings, Face (Reducing 1 and 2 Sizes)..each	....	.42	.42	.48	.66	.99	1.32	1.65	2.10	4.25	6.60	14.00
Caps....each	$.24	.24	.24	.32	.42	.66	1.00	1.35	2.30	4.25	6.50	12.50
Couplings, Right Hand....each	.32	.32	.32	.40	.53	.80	1.25	1.70	2.80	4.50	6.25	11.50
Couplings, Right and Left....each	....	....	.85	1.00	1.18	1.70	2.40	2.80	4.00	6.50	8.50	.....
Couplings, Reducing (Red. 1 and 2 Sizes).each	...	.34	.34	.43	.63	1.05	1.70	2.15	3.20	5.50	7.00	15.00
Couplings, Reducing (Reducing 3 Sizes).each	...	...	...	.48	.70	1.15	1.88	2.35	3.50	6.00	7.70	16.50
Crosses....each	.72	.72	.72	.90	1.30	2.00	3.00	4.00	8.00	15.00	22.00	45.00
Elbows, 90°....each	.32	.32	.32	.48	.65	1.00	1.60	2.00	3.25	6.20	9.50	22.00
Elbows, Reducing....each	...	.48	.48	.52	.71	1.25	1.90	2.40	4.25	7.50	11.50	26.00
Elbows, 45°....each	.35	.35	.35	.44	.65	1.10	1.76	2.20	3.58	6.80	10.50	24.00
Elbows, 90° Street....each	.48	.48	.48	.60	.85	1.40	2.15	2.80	4.75	....	....	.....
Elbows, 45° Street....each	...	.48	.48	.60	.85	1.40	2.15	2.80	4.75	....	....	.....
Floor Flanges, Round....each	...	.75	.75	.88	1.20	1.88	2.15	3.00	4.00	....	....	.....
Lock Nuts....each	.15	.15	.15	.25	.30	.45	.68	.88	1.40	2.50	4.00	8.00
Plugs, Square Head, Cored....each	..:	...	...	...	.38	.50	.75	.95	1.50	2.50	4.00	7.50
Plugs, Square Head, Solid....each	.21	.21	.21	.33	.40	.60	.90	1.25	2.10	3.70	6.00	14.50
Plugs, Countersunk....each	...	...	...	.33	.40	.60	.90	1.25	2.10	3.70	6.00	14.50
Return Bends, Close Right-Hand....each	...	...	...	.95	1.35	1.90	3.20	5.00	7.75	....	....	.....
Return Bends, Open Right-Hand....each	...	...	...	1.25	1.80	2.50	3.60	5.75	8.00	15.60	23.90	.....
Tees....each	.44	.44	.44	.56	.80	1.42	2.00	2.75	4.50	8.50	13.00	30.00
Tees, Reducing (1 Opening)....each	...	.53	.53	.67	.96	1.70	2.40	3.30	5.40	10.00	15.50	36.00
Tees, Reducing (2 Opening)....each	...	.57	.57	.73	1.05	1.85	2.60	3.50	5.85	11.00	17.00	39.00
Unions....each	1.25	1.25	1.25	1.60	2.25	3.00	4.20	5.40	8.50	13.70	23.40	.....
Y Branches....each	....	....	1.00	1.15	1.50	2.60	4.30	6.00	10.00	19.00	28.50	66.00


No. 652 Close

Brass Nipples

Iron Pipe Size

Standard and Extra Strong


No. 653 Long

Made from highest quality, new seamless pipe, accurately threaded, reamed and chamfered.

Close Nipples

Size In.	Each	Lgth. In.	Size In.	Each	Lgth. In.	Size In.	Each	Lgth. In.
⅛	$.17	¾	1	$.51	1½	3	$4.50	2⅝
¼	.20	⅞	1¼	.76	1⅝	4	9.00	2⅞
⅜	.23	1	1½	.95	1¾	5	16.00	3
½	.24	1⅛	2	1.40	2	6	21.00	3⅛
¾	.32	1⅜	2½	3.00	2½	.	.....	...

Long Nipples

	Length, Inches									
Size In.	1½ Each	2 Each	2½ Each	3 Each	3½ Each	4 Each	4½ Each	5 Each	5½ Each	6 Each
⅛	$.18	$.19	$.21	$.23	$.25	$.27	$.29	$.31	$.33	$.36
¼	.21	.22	.25	.28	.31	.35	.39	.43	.47	.51
⅜	.26	.29	.34	.38	.43	.47	.52	.56	.61	.68
½	.29	.35	.41	.47	.53	.59	.66	.72	.79	.86
¾	...	.41	.50	.59	.68	.77	.86	.94	1.02	1.11
1	...	.60	.71	.82	.93	1.04	1.16	1.28	1.40	1.52
1¼	...	.89	1.05	1.21	1.37	1.53	1.69	1.86	2.02	2.19
1½	...	1.05	1.25	1.40	1.60	1.80	2.00	2.20	2.40	2.55
2	...	....	1.65	1.85	2.10	2.35	2.65	2.90	3.15	3.40
2½	...	....	....	3.50	3.90	4.40	4.90	5.40	5.90	6.40
3	...	....	....	5.00	5.50	6.20	6.90	7.60	8.30	9.00
4	...	....	....	....	....	11.00	12.25	13.50	14.75	16.00
5	...	....	....	....	....	.....	19.00	21.00	23.00	25.00
6	...	....	....	....	....	.....	26.00	28.00	30.00	32.00

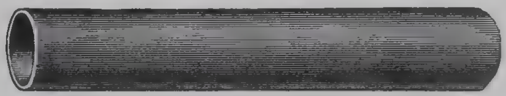
For standard polished nipples, add 50 per cent.

For standard chromium plated nipples, add 100 per cent.

Standard right and left nipples are furnished only 4 inches in length and in pipe sizes ⅜ to 2 inches inclusive, add 50 per cent.

Seamless Red Brass and Copper Pipe

Regular Weight



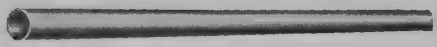
Made from the best grades of copper and zinc.

Brass pipe does not rust, therefore it has a long life. It insures a full flow of clear water.

			Red Brass		Copper	
Std. Pipe Size Inches	O.D. Inches	Wall Inches	Wt. Lb. per Ft.	Per Lineal Foot	Wt. Lb. per Ft.	Per Lineal Foot
⅛	.405	.062	.253	.....	.259	.....
¼	.540	.082	.447	.....	.457	.....
⅜	.675	.090	.627	.....	.641	.....
½	.840	.107	.934	.....	.955	.....
¾	1.050	.114	1.27	.....	1.30	.....
1	1.315	.126	1.78	.....	1.82	.....
1¼	1.660	.146	2.63	.....	2.69	.....
1½	1.900	.150	3.13	.....	3.20	.....
2	2.375	.156	4.12	.....	4.22	.....
2½	2.875	.187	5.99	.....	6.12	.....
3	3.500	.219	8.56	.....	8.75	.....
3½	4.000	.250	11.2	.....	11.4	.....
4	4.500	.250	12.7	.....	12.9	.....
5	5.562	.250	15.8	.....	16.2	.....
6	6.625	.250	19.0	.....	19.4	.....
8	8.625	.312	30.9	.....	31.6	.....
10	10.750	.365	45.2	.....	46.2	.....
12	12.750	.375	55.3	.....	56.5	.....

Copper Water Tube

Soft Temper



Hard Temper

Type K is furnished in both hard and soft tempers and is used for underground services and general plumbing purposes with severe conditions.

Furnished in 20-foot lengths; and the soft temper in 60-foot coils to and including 1½-inches.

Type L is made in hard or soft temper and is for general plumbing and heating purposes.

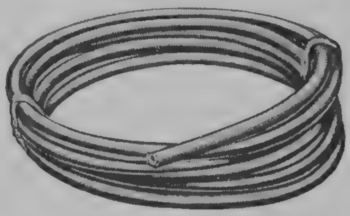
Comes in 20-foot lengths, and soft temper in 60-foot coils to and including 1½-inches.

Type M is hard temper only, and is for general plumbing purposes with soldered fittings only, not for underground services.

Comes in 20-foot straight lengths.

		Type K			Type L			Type M		
Nom. Size In.	O.D. In.	Per Ft.	Thickness Wall In.	Wt. Lb. per Ft.	Per Ft.	Thickness Wall In.	Wt. Lb. per Ft.	Per Ft.	Thickness Wall In.	Wt. Lb. per Ft.
¼	.375	...	.035	.145	...	.030	.126	...	...	....
⅜	.500	...	.049	.269	...	.035	.198	...	.025	.145
½	.625	...	.049	.344	...	.040	.285	...	.028	.204
⅝	.750	...	.049	.418	...	.042	.362	...	...	....
¾	.875	...	.065	.641	...	.045	.455	...	.032	.328
1	1.125	...	.065	.839	...	.050	.655	...	.035	.465
1¼	1.375	...	.065	1.04	...	.055	.884	...	.042	.682
1½	1.625	...	.072	1.36	...	.060	1.14	...	.049	.940
2	2.125	...	.083	2.06	...	.070	1.75	...	.058	1.460
2½	2.625	...	.095	2.93	...	.080	2.48	...	.065	2.030
3	3.125	...	.109	4.00	...	.090	3.33	...	.072	2.680
3½	3.625	...	.120	5.12	...	.100	4.29	...	.083	3.580
4	4.125	...	.134	6.51	...	.110	5.38	...	.095	4.660
5	5.125	...	.160	9.67	...	.125	7.61	...	.109	6.660
6	6.125	...	.192	13.90	...	.140	10.20	...	.122	8.920

Copper Tubing



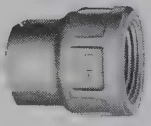
Round, soft temper.
It is soft enough to coil without kinking and is made specially for gasoline lines, oiling systems, etc.

⅛ -In. O.D...per ft. ....
³⁄₁₆-In. O.D...per ft. ....
¼ -In. O.D...per ft. ....
⁵⁄₁₆-In. O.D...per ft. ....
⅜ -In. O.D...per ft. ....
½-In. O.D...per ft. ....
⅝-In. O.D...per ft. ....
¾-In. O.D...per ft. ....
1 -In. O.D...per ft. ....
....

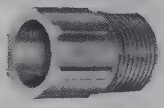
Streamline Solder Fittings

Wrought Copper—Cast Bronze

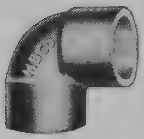
Wrought Copper Coupling Copper to Copper



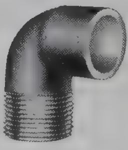
Cast Bronze Coupling Copper to N.P.T.I.



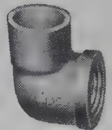
Cast Bronze Coupling Copper to N.P.T.E.



Cast Bronze 90° Elbow Copper to Copper



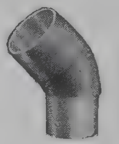
Cast Bronze 90° Elbow Copper to N.P.T.E.



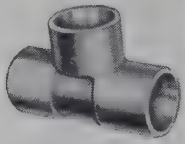
Cast Bronze 90° Elbow Copper to N.P.T.I.

Cast Bronze 45° Elbow Copper to Copper

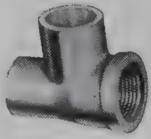
Cast Bronze 90° Street Elbow Fitting to Copper



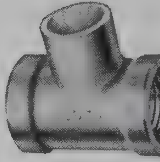
Cast Bronze 45° Street Elbow Fitting to Copper



Cast Bronze Tee Copper to Copper to Copper

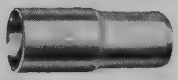


Cast Bronze Tee N.P.T.I. to Copper to Copper

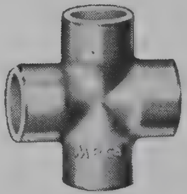


Cast Bronze Tee N.P.T.I. to N.P.T.I. to Copper

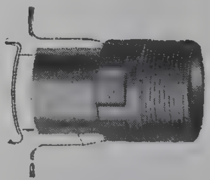
Cast Bronze Tee Copper to Copper to N.P.T.I.



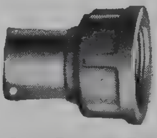
Wrought Copper Bushing Fitting to Copper



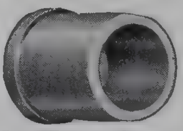
Cast Bronze Cross Copper to Copper



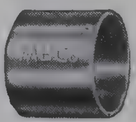
Cast Bronze Fitting Nipple-Fitting to N.P.T.E.



Cast Bronze Fitting Coupling-Fitting to N.P.T.I.



Cast Bronze Plug

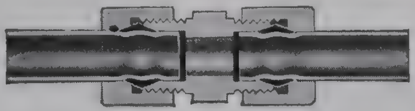


Cast Bronze Cap

Streamline pipe and fittings are available in all standard patterns and sizes. Submit your piping problems to us.

Elbows and tees also available in wrought copper.

Imperial Brass Compression Fittings



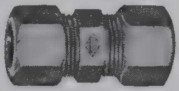
No. 60-F Sleeves

O.D. of Tube Inches	Per 100	Std. Pkg.
⅛	$5.50	50
5/32	6.50	15
3/16	5.50	100
¼	5.50	100
5/16	6.50	100
⅜	7.00	50
7/16	14.00	15
½	18.00	15
⅝	28.00	10
¾	42.50	..

No. 61-F Nuts

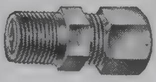
O.D. of Tube Inches	Per 100	Std. Pkg.
⅛	$10.00	15
5/32	15.00	10
3/16	11.00	15
¼	11.00	25
5/16	15.00	25
⅜	20.00	15
7/16	35.00	10
½	44.00	10
⅝	65.00	5
¾	92.00	..

No. 62-F Unions



O.D. of Tube Inches	*Per 100	Std. Pkg.
⅛	$50.00	10
5/32	61.00	5
3/16	49.00	10
¼	54.00	15
5/16	66.00	15
⅜	83.00	10
7/16	154.00	5
½	201.00	10
⅝	349.00	5
¾	447.00	..

No. 63-F Checks

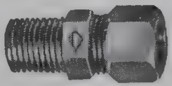


O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$85.00	⅛	5
3/16	79.00	⅛	5
¼	80.00	⅛	5
5/16	85.00	⅛	5
⅜	129.00	¼	5
½	266.00	⅜	5

No. 66-F Female Couplings

O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$44.00	⅛	10
3/16	41.00	⅛	10
3/16	69.00	¼	5
¼	44.00	⅛	15
¼	67.00	¼	10
5/16	46.00	⅛	15
5/16	79.00	¼	10
⅜	81.00	⅛	10
⅜	85.00	¼	10
7/16	154.00	¼	5
½	185.00	⅜	5
⅝	268.00	⅜	5
⅝	268.00	½	5
¾	428.00	½	..

No. 68-F Connections



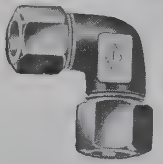
O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.	O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$34.00	⅛	10	⅜	$116.00	⅜	5
3/16	30.00	⅛	15	⅜	185.00	½	5
†¼	36.00	⅛	25	7/16	126.00	¼	5
¼	49.00	¼	15	½	139.00	⅜	10
†5/16	44.00	⅛	25	½	193.00	½	5
5/16	51.00	¼	15	⅝	201.00	½	5
⅜	65.00	⅛	10	¾	268.00	½	..
†⅜	66.00	¼	15	...	......	..	..

*Prices include nuts and sleeves.

†The same tubing size is furnished in various iron pipe thread sizes. This size is standard.

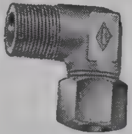
Imperial Brass Compression Fittings

No. 65-F Elbows



O.D. of Tube Inches	*Per 100	Std. Pkg.
⅛	$85.00	5
3/16	79.00	5
¼	80.00	10
5/16	96.00	10
⅜	129.00	10
7/16	198.00	5
½	233.00	5
⅝	410.00	5
¾	522.00	..

No. 69-F Elbows

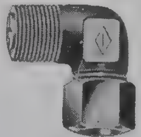


O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$49.00	⅛	10
3/16	50.00	⅛	15
¼	54.00	⅛	25
¼	67.00	¼	15
5/16	66.00	⅛	25
5/16	85.00	¼	15
⅜	96.00	⅛	10
⅜	96.00	¼	15
⅜	170.00	⅜	5
⅜	286.00	½	5
7/16	185.00	¼	5
½	216.00	⅜	10
½	317.00	½	5
⅝	323.00	½	5
¾	492.00	½	..

No. 70-F Elbows

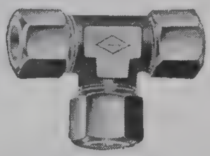
O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$69.00	⅛	5
3/16	54.00	⅛	5
¼	62.00	⅛	10
5/16	79.00	⅛	10
⅜	125.00	¼	5
7/16	193.00	¼	5
½	216.00	⅜	5

No. 73-F Elbow Checks



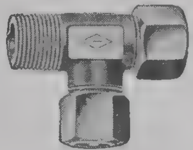
O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$97.00	⅛	5
3/16	101.00	⅛	5
¼	107.00	⅛	5
5/16	122.00	⅛	5
⅜	154.00	¼	5

No. 64-F Tees



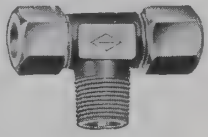
O.D. of Tube Inches	*Per 100	Std. Pkg.
⅛	$101.00	5
3/16	93.00	5
¼	106.00	10
5/16	117.00	10
⅜	175.00	5
7/16	263.00	5
½	394.00	5
⅝	695.00	5
¾	769.00	..

No. 71-F Tees



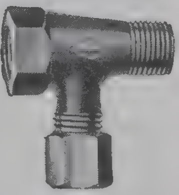
O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$101.00	⅛	5
3/16	85.00	⅛	5
¼	88.00	⅛	10
5/16	108.00	⅛	10
⅜	141.00	¼	5
7/16	349.00	¼	5
½	370.00	⅜	5
⅝	453.00	½	5
¾	614.00	½	..

No. 72-F Tees



O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$101.00	⅛	5
3/16	85.00	⅛	5
¼	88.00	⅛	10
5/16	108.00	⅛	10
⅜	141.00	¼	5
7/16	349.00	¼	5
½	370.00	⅜	5
⅝	453.00	½	5
¾	614.00	½	5

No. 76-F Male and Female Tees

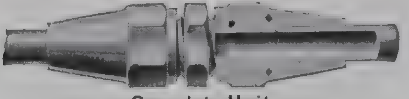


O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.
⅛	$101.00	⅛	5
3/16	96.00	⅛	5
¼	101.00	⅛	5
5/16	116.00	⅛	5
⅜	163.00	¼	5

*Prices of fittings include nuts and sleeves.

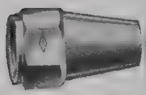
Imperial Flared Tube Fittings

For Connecting Brass and Copper Tubing

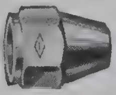


Complete Unit

Union Nuts



No. 41F



No. 41FS

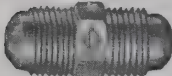
No. 41-F, Standard Length

Std. Lgth. In.	*Per 100	O.D. Tube	Std. Pkg.	Wt. Lb. Per 100
3/4	$21.00	1/8	10	1 1/2
13/16	22.00	3/16	15	1 3/4
15/16	26.00	1/4	25	3 1/2
1 1/8	36.00	5/16	25	5
1 5/16	54.00	3/8	15	8
1 1/2	84.00	7/16	5	10
1 5/8	99.00	1/2	10	12
1 7/8	161.00	5/8	5	20 1/2
2 3/16	216.50	3/4	..	30 1/2
2 5/16	671.50	7/8	..	48

No. 41-FS, Short Length

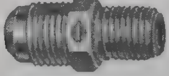
1/2	$19.00	1/8	10	3/4
5/8	20.00	3/16	15	1 1/4
3/4	24.00	1/4	25	3
7/8	33.00	5/16	25	4 1/4
1	46.00	3/8	15	5 1/2
1 1/16	74.00	7/16	5	7 1/2
1 1/8	85.00	1/2	5	8 1/2
1 5/16	138.00	5/8	5	14 1/2
1 1/2	175.50	3/4	..	22 1/2
1 5/8	655.00	7/8	..	39

No. 42-F Union Couplings



O.D. of Tube Inches	*Per 100	Std. Pkg.	Wt. Lb. Per 100
1/8	$46.00	5	2
3/16	36.00	10	2 1/2
1/4	43.00	15	3 1/2
5/16	46.00	15	5
3/8	69.00	10	9
7/16	93.00	5	12
1/2	116.00	5	14
5/8	198.00	5	21 1/2
3/4	277.00	..	37
7/8	694.00	..	55

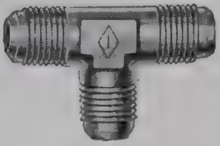
No. 43-F Ball Checks



O.D. of Tube Inches	*Per 100	Pipe Thread In.	Std. Pkg.	Wt. Lb. Per 100
3/16	$69.00	1/8	5	2 1/2
1/4	72.00	1/8	5	3
5/16	82.00	1/8	5	4 1/2
3/8	112.00	1/4	5	8
7/16	138.00	1/4	5	10
1/2	163.00	3/8	5	14

*Prices do not include nuts.

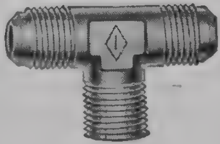
No. 44-F Tees



O.D. Tube In.	*Per 100	Pipe Thread In.	Std. Pkg.	Wt. Lb. Per 100
1/8	$59.00	...	5	5 1/2
3/16	57.00	...	5	6
1/4	62.00	...	10	7
5/16	79.00	...	10	10 1/2
3/8	120.00	...	5	17 1/2
7/16	386.00	...	5	22 1/2
1/2	224.00	...	5	21 1/2
5/8	593.00	...	5	39 1/2
3/4	755.00	...	..	61

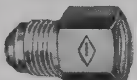
S.A.E. thread only.

No. 45-F Tees



O.D. Tube In.	*Per 100	Pipe Thread In.	Std. Pkg.	Wt. Lb. Per 100
3/16	$54.00	1/8	5	6
1/4	59.00	1/8	10	7
1/4	116.00	1/4	..	12
5/16	69.00	1/8	10	8 1/2
3/8	112.00	1/4	5	13
3/8	184.00	3/8	..	21
7/16	378.00	1/4	5	17 1/2
1/2	216.00	3/8	5	22 1/2
1/2	593.00	1/2	..	25
5/8	571.00	1/2	5	36
3/4	771.00	1/2	..	53 1/2
3/4	925.00	3/4	..	55 1/2

No. 46-F Female Couplings



O.D. of Tube Inches	*Per 100	Pipe Thread Inches	Std. Pkg.	Wt. Lb. Per 100
3/16	$30.00	1/8	10	3 1/2
1/4	34.00	1/8	15	4 1/2
1/4	49.00	1/4	10	5
5/16	43.00	1/8	15	4 1/2
5/16	54.00	1/4	10	5
3/8	62.00	1/8	10	7 1/2
3/8	69.00	1/4	10	10 1/2
3/8	108.00	3/8	5	10
3/8	141.00	1/2	..	14
3/8	208.00	3/4	..	17 1/2
7/16	193.00	1/4	5	10
7/16	201.00	3/8	5	12
1/2	115.00	3/8	5	12 1/2
1/2	185.00	1/2	5	16
1/2	216.00	3/4	..	19 3/4
5/8	257.00	3/8	5	35 1/2
5/8	197.00	1/2	..	25 1/2
5/8	235.00	3/4	..	46 1/4
3/4	350.00	1/2	..	36

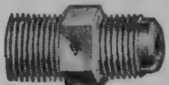
S.A.E. Thread Sizes

O.D. In.	Thread	O.D. In.	Thread	O.D. In.	Thread	O.D. In.	Thread
1/8	5/16-24	5/16	1/2 -20	1/2	3/4-16	7/8	1 1/4-12
3/16	3/8-24	3/8	5/8 -18	5/8	7/8-14	..	......
1/4	7/16-20	7/16	11/16-16	3/4	1 1/16-14	..	......

Imperial Flared Tube Fittings

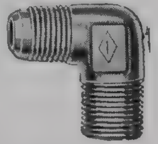
For Connecting Brass and Copper Tubing

No. 48-F Half Union Couplings



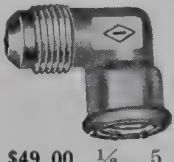
O.D. Tube In.	*Per 100	Pipe Thrd. In.	Std. Pkg.	Wt. Lb. Per 100
1/8	$24.00	1/8	10	2 1/2
3/16	26.00	1/8	15	2 3/4
1/4	27.00	1/8	25	3
1/4	45.00	1/4	10	5
1/4	96.00	3/8	..	9
1/4	152.00	1/2	..	11 3/4
5/16	32.00	1/8	15	4
5/16	47.00	1/4	10	6
3/8	67.00	1/8	10	6 1/2
3/8	65.00	1/4	15	7 1/4
3/8	85.00	3/8	10	10 1/2
3/8	139.00	1/2	..	14
3/8	239.00	3/4	..	21 3/4
7/16	80.00	1/4	5	8 3/4
1/2	131.00	1/4	..	10
1/2	95.00	3/8	5	11 1/2
1/2	129.00	1/2	5	16
1/2	248.00	3/4	..	23 1/2
5/8	278.00	3/8	..	16 1/2
5/8	154.00	1/2	5	18
5/8	257.00	3/4	..	25 1/2
3/4	240.00	1/2	..	27
3/4	257.00	3/4	..	31
7/8	662.00	3/4	..	40 3/4

No. 49-F Elbows



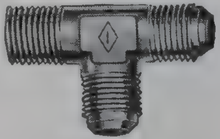
1/8	$54.00	1/8	10	4
3/16	39.00	1/8	15	3 1/2
1/4	43.00	1/8	25	4
1/4	62.00	1/4	10	7
1/4	126.00	3/8	..	9
5/16	46.00	1/8	25	5 1/2
5/16	70.00	1/4	10	7
3/8	85.00	1/8	10	8 3/4
3/8	85.00	1/4	15	9 1/2
3/8	128.00	3/8	10	11
3/8	222.00	1/2	..	19 1/2
3/8	308.00	3/4	..	36
7/16	124.00	1/4	..	10 1/4
1/2	257.00	1/4	5	10
1/2	123.00	3/8	5	14
1/2	219.00	1/2	5	21
1/2	332.00	3/4	..	36 1/4
5/8	240.00	1/2	5	18 1/2
5/8	347.00	3/4	..	27 3/4
3/4	382.00	1/2	..	38 3/4
3/4	405.00	3/4	..	39 1/2
7/8	697.00	3/4	..	50

No. 50-F Elbows



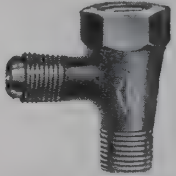
O.D. Tube In.	*Per 100	Pipe Thrd., In.	Std. Pkg.	Wt. Lb. Per 100
3/16	$49.00	1/8	5	6 1/2
1/4	50.00	1/8	10	5 1/2
1/4	116.00	1/4	..	11
5/16	60.00	1/8	10	6 1/2
5/16	170.00	1/4	..	12
3/8	$126.00	1/4	5	11
3/8	217.00	3/8	..	15
3/8	386.00	1/2	..	17
3/8	270.00	3/4	..	25
7/16	170.00	1/4	5	15
1/2	234.00	3/8	5	15
1/2	386.00	1/2	..	33 1/2
1/2	370.00	3/4	..	25
5/8	349.00	3/8	5	27
5/8	332.00	1/2	5	39
5/8	386.00	3/4	..	30
3/4	440.00	1/2	..	43

No. 51-F Tees



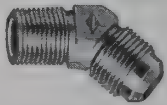
3/16	$54.00	1/8	5	6
1/4	60.00	1/8	10	7
5/16	69.00	1/8	10	9
3/8	112.00	1/4	5	16
3/8	248.00	3/8	..	21 1/2
7/16	378.00	1/4	5	18 1/4
1/2	216.00	3/8	5	22
1/2	370.00	1/2	..	30
5/8	571.00	1/2	5	37 1/2
3/4	771.00	1/2	..	48

No. 53-F 45° Tees



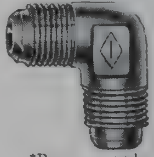
1/8	$129.00	1/8	5	5 3/4
3/16	134.00	1/8	5	6
1/4	145.00	1/8	5	7 1/2
5/16	224.00	1/8	5	7 3/4
3/8	255.00	1/4	5	16

No. 54-F 45° Elbows



3/16	$82.00	1/8	5	4
1/4	85.00	1/8	5	4 1/2
5/16	91.00	1/8	5	5
3/8	101.00	1/4	5	8
1/2	132.00	3/8	5	12

No. 55-F Elbows



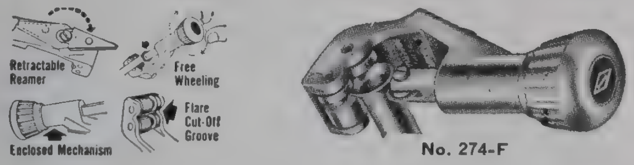
O D. Tube In.	*Per 100	Std. Pkg.	Wt. Lb. Per 100
1/4	$51.00	10	5 1/2
5/16	54.00	10	6
3/8	79.00	5	9 1/2
7/16	131.00	5	17 3/4
1/2	139.00	5	18
5/8	303.00	5	29 1/2
3/4	433.00	..	40

*Nuts not included.

S.A.E. Thread Sizes

O.D. In.	Thrd.	O.D. In.	Thrd.	O.D. In.	Thrd.
1/8	5/16-24	3/8	5/8-18	3/4	1 1/16-14
3/16	3/8-24	7/16	11/16-16	7/8	1 1/4-12
1/4	7/16-20	1/2	3/4-16	...	......
5/16	1/2-20	5/8	7/8-14	...	......

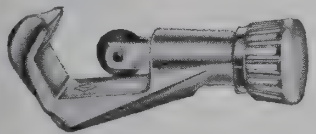
Imperial Tube Cutters



Quickly cuts copper, brass, aluminum, block tin, Bundy steel or lead tubing. Tubing rests against two rollers making operation easy. Hardened cutting wheel and aluminum alloy body, polished finish. Reamer or flare cut off groove. Groove in rollers permits cutting tube right at base of flare; retractable reamer. Ball-bearing action.

No.	274-F	312-F
Each	$3.95	4.75
For Tubing, O.D. ... inches	⅛ to 1	¼ to 1⅜
Weight ... pounds	⅜	¾

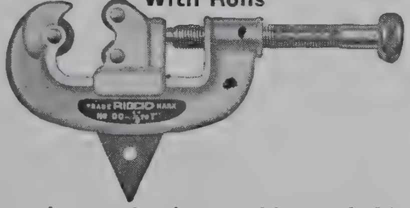
No. 227-F Imperial Junior Tube Cutters



Cuts hard or soft copper, brass, aluminum, steel, block tin and lead tubing. Takes all sizes from ⅛ to and including ¾ inch outside diameter tubing. Makes a quick, clean, right-angle cut without flattening the tube.

No. **227**-F, Approximate weight, ¼ pound.......each **$1.75**

Ridgid Tubing Cutters
With Rolls



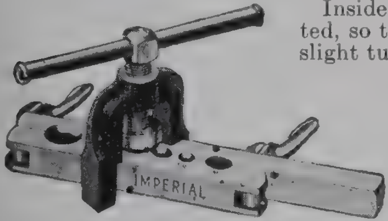
For copper, brass, aluminum tubing and thin wall conduit. Cuts quickly, no burr. Handy integral reamer.

Heavy duty wheel for thin-wall steel and stainless steel tubing available.

No.	000	00	0
Complete ... each	$2.85	$3.30	$5.95
Cutter Wheel ... each	.50	.50	.50
Heavy Duty Wheel ... each	.60	.60	.60
Frame ... each	1.45	2.00	3.35
Roll Housing ... each	.75	.90	1.25
Roll ... each	.25	.35	.50
Roll Pin ... each	.20	.20	.20
Wheel Pin ... each	.20	.20	.20
Screw Handle ... each	.75	1.00	1.50
Capacity, O.D. ... inches	⅛–1	3/16–1⅛	½–2⅛
Weight ... pounds	¾	1¼	2

Imperial Flaring Tool with Slip-On Yoke

Flares soft copper, brass or aluminum tubing. Forged steel yoke is made to slip directly over bar without twisting. Inside edges of yoke are slotted, so that once in position, a slight turn holds it in place.



Nos. 193-F and 195-F have flaring cone which rotates.

No. **193**-F, for Flaring 3/16, ¼, 5/16, ⅜, 7/16 and ½-Inch O. D. Tubing ....each **$4.75**

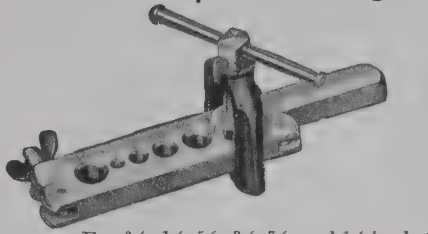
No. **193**-FS, Same as No. 193-F but with Swivel-Type Cone. .ea.**$4.95**

No. **195**-F for Flaring ¼, 5/16, ⅜, ½ and ⅝-Inch O.D. Tubing..each **$5.60**

No. 195-FS is the same as No. 195-F except with a swivel-type cone which remains stationary while screw is turned when flaring—advantageous with large tubes.

No. **195**-FS.................................each **$5.95**

Imperial Flaring Tools



Flares soft copper brass or aluminum tubing to make up S.A.E. joints.

No. 93-F. Yoke made of steel forging and furnished with cone which rotates with the screw. For 3/16, ¼, 5/16, ⅜, 7/16 and ½-inch tubing. .each **$4.50**

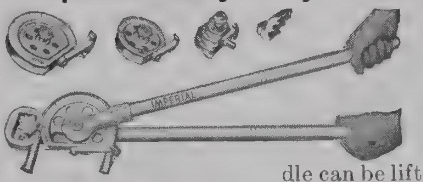
No. 95-F. Yoke made of steel forging and furnished with cone which rotates with the screw. Specially designed for sizes used in electrical refrigerator work—¼, 5/16, ⅜, ½, and ⅝-inch tubing...............................each **$5.30**

No. 95-FS. Same as No. 95-F, except with swivel cone which remains stationary, while screw is turned.each **$5.65**

Extra Parts

No.	Description	Each
33465	Yoke Assembly for Nos. 93-F and 95-F	**$1.83**
38379	Yoke Assembly for No. 95-FS	**2.10**
30077	Bar for No. 93-F	**3.00**
30231	Bar for Nos. 95-F and 95-FS	**4.20**
38584	Wing Nut	**.32**
25384	Compressor Cone for Nos. 93-F and 95-F	**.42**
32532	Compressor Cone for No. 95-FS	**.42**

Imperial Heavy-Duty Tube Bending Tools



JIC steel, and heavy-wall brazed steel tubing with use of clamp.

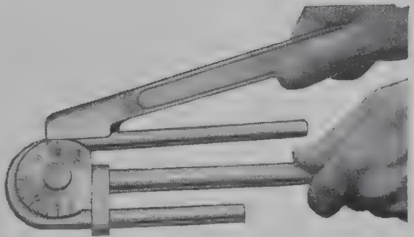
When bending sizes larger than ⅜-inch o.d., handle can be lifted and repositioned during course of bend. Lifting center pin releases forming wheel and frees tubing.

Makes right or left-hand bends to any angle up to 180° return bend. Calibrated to show degree positions. Bender can be positioned on tubing at exact point bend is needed. Tool can be clamped in a vise. Two-piece handles are removable.

Furnished in a steel chest. Weight, 20 pounds.

O.D. Tube ... in.	¼	5/16	⅜	½	⅝	¾	⅞
No. **260**-F ... ea.	**$68.95**	**68.95**	**68.95**	**68.95**	**68.95**	**68.95**	**68.95**
No. **350**-F ... ea.	**$59.75**	**59.75**	**59.75**	**59.75**	**59.75**	**59.75**	.....
No. **360**-F ... ea.	....	....	**$48.00**	**48.00**	**48.00**	**49.50**	.....
Bend. Radius:							
No. 260-F ... in.	¼	5/16	⅜	½	⅝	¾	⅞
No. 350-F ... in.	¾	1	1¼	1⅝	2¼	3	..
No. 360-F ... in.	..	..	1⅝	1⅝	2¼	3	..

No. 364-FH Imperial Blue Dot Hand Tube Benders



Bends both hard and soft temper tubing; any angle up to 180°. Calibrated to show degree positions. Each bender handles one size tubing.

Benders for ⅝ and ¾-inch o.d. tubing have long pipe handles for ample leverage. Open side type. Tubing easily removed after bending. Can be clamped in a vise.

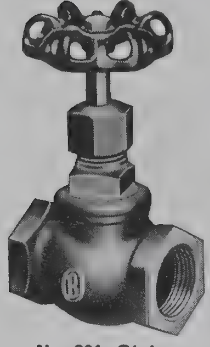
O.D. Tube ... inches	*3/16	¼	5/16	⅜	½	⅝	¾
No. **364**-FH	**$6.50**	**6.50**	**7.55**	**7.40**	**12.50**	**23.85**	**31.95**
Radius to Ctr. of Tube ... in.	7/16	9/16	11/16	15/16	1½	2¼	3
Weight ... pounds	9/16	¾	1¼	1¾	1¾	10	10½

*Can also be used for ⅛-inch tubing.

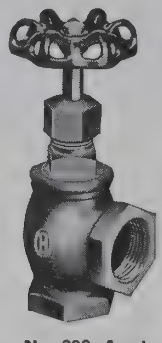
O-B Bronze Globe and Angle Valves

Brass Disc

Screwed Ends
100 Pounds Steam Working Pressure
150 Pounds Water, Oil or Gas Pressure



No. 201, Globe



No. 202, Angle

This valve is for low pressure service.

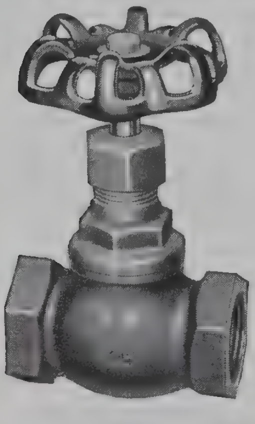
Made of high grade steam bronze.

Has non-heating handwheel enameled green. Screwed ends, threaded right hand for both inlet and outlet.

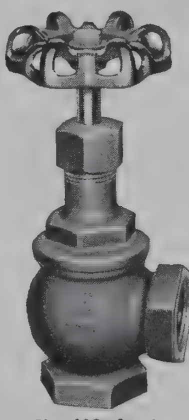
	No. 201, Globe		No. 202, Angle	
Size In.	Each	End to End In.	Each	Ctr. to End In.
1/8	$1.90	1 9/16	$1.90	25/32
1/4	1.90	1 11/16	1.90	27/32
3/8	2.05	1 13/16	2.05	29/32
1/2	2.60	2 1/8	2.60	1 1/16
3/4	3.40	2 1/2	3.40	1 1/4
1	4.70	3	4.70	1 1/2
1 1/4	$6.10	3 17/32	$6.10	1 3/4
1 1/2	8.60	3 15/16	8.60	1 31/32
2	12.70	4 5/8	12.70	2 5/16
2 1/2	21.50	5 3/4	21.50	2 29/32
3	32.00	6 3/4	32.00	3 3/8

O-B Bronze Globe and Angle Valves

For 125 Pounds Steam Working Pressure—200 W.O.G.



No. 101, Globe



No. 102, Angle

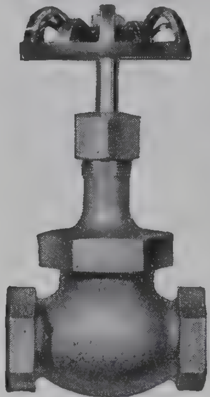
Scientifically designed to insure correct distribution of metal. Each individual part has been developed to best serve the purpose for which it is intended. Made of high grade steam bronze. Uniformity of mixture is assured through the use of only new metals and the supervision of experienced metallurgical chemists. Non-heating, hand wheel is green enameled. Trimmings are nicely finished, body is rough. Screwed ends, threaded right hand for both inlet and outlet.

	No. 101 Globe		No. 102 Angle	
Size In.	Each	E to E In.	Each	C. to E., In.
1/8	$2.10	1 9/16	$2.10	25/32
1/4	2.10	1 11/16	2.10	27/32
3/8	2.40	1 7/8	2.40	15/16
1/2	3.40	2 3/16	3.40	1 3/32
3/4	4.50	2 3/4	4.50	1 11/32
1	6.20	3 3/16	6.20	1 19/32
1 1/4	$8.00	3 11/16	$8.00	1 27/32
1 1/2	11.30	4 1/16	11.30	2 1/32
2	17.50	4 3/4	17.50	2 3/8
2 1/2	25.50	5 3/4	25.50	2 29/32
3	38.00	6 3/4	38.00	3 3/8

No. 11 O-B Bronze Globe and Angle Valves

Composition Disc—Outside Bonnet

Screwed Ends
150 Pounds Steam Working Pressure—300 Pounds W.O.G.



No. 1101, Globe

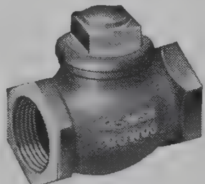
A one-piece, screw over bonnet composition disc valve for all types of high pressure general industrial service. A machined bevel on body makes a high compression, leakproof seal with bonnet. A slip-on, self-levelling disc holder makes disc replacement simple. Valve can be repacked under pressure. Special Buna-N discs and packing can be supplied for LP gas service.

No. 1102, Angle

	No. 1101, Globe		No. 1102, Angle	
Size In.	Each	End to End Inches	Each	Center to End Inches
1/8	$3.30	2 1/16	$3.30	1 1/32
1/4	3.30	2 1/16	3.30	1 1/32
3/8	4.10	2 1/2	4.10	1 1/4
1/2	5.20	2 15/16	5.20	1 15/32
3/4	7.20	3 3/8	7.20	1 11/16
1	9.80	3 13/16	9.80	1 29/32
1 1/4	13.40	4 3/8	13.40	2 5/32
1 1/2	16.70	4 15/16	16.70	2 15/32
2	27.00	5 15/16	27.00	2 31/32
2 1/2	49.00	7 3/16	49.00	3 19/32
3	69.00	8 1/8	69.00	4 1/4

O-B Bronze Check Valves

Screwed Ends
125 Pounds Steam Working Pressure
200 Pounds Water, Oil, Gas Pressure

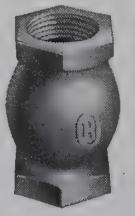


No. 103

No. 103 Horizontal Brass Disc

Poppet-Type

Size In.	Each	Size In.	Each
1/2	$3.20	1 1/2	$9.30
3/4	4.30	2	13.80
1	5.60	2 1/2	23.00
1 1/4	7.20	3	34.00



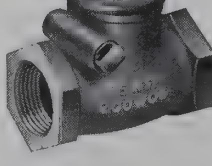
No. 104

No. 103-B Horizontal Ball Brass Disc

Size In.	Each	Size In.	Each
1/8	$2.10	3/8	$2.30
1/4	2.10	..	.....

No. 104 Vertical Brass Disc

Size In.	Each	Size In.	Each
1/4	$2.60	1 1/4	$7.50
3/8	2.80	1 1/2	10.30
1/2	3.90	2	15.20
3/4	4.70	2 1/2	24.00
1	6.20	3	36.00



No. 106

No. 106 Swing Brass Disc

Size In.	Each	Size In.	Each
1/4	$3.80	1 1/4	$8.00
3/8	3.80	1 1/2	9.70
1/2	4.30	2	14.70
3/4	4.90	2 1/2	24.00
1	6.50	3	36.00

Available in No. 106-L with leather disc or No. 106-X with composition disc.

Jenkins Bronze Globe and Angle Valves

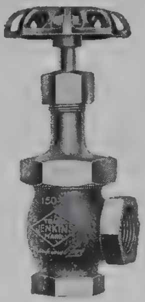
Renewable Composition Disc—With Slip-On Stay-On Disc Holder—Screw-Over Bonnet

Screwed Ends
150 Pounds Steam Working Pressure
300 Pounds Non-Shock Cold Oil, Water, Gas Working Pressure
Flanged Ends
150 Pounds Steam Working Pressure
225 Pounds Non-Shock Cold Oil, Water, Gas Working Pressure

No. 106-A Globe, Screwed

Exceptionally serviceable for the control of steam, fluids and gases where tightness is essential and frequent operation is required.

The resilient composition disc assures drop-tight closure with least closing-effort.



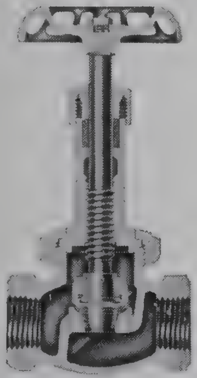
No. 108-A Angle, Screwed

	Screwed			Flanged		
Size In.	No. 106-A Globe No. 108-A Angle Each	Globe End to End In.	Angle Ctr. to End In.	No. 107-A Globe Each	Face to Face In.	Diam. Flange In.
1/8	$4.10	1 9/16	25/32	.....	...	...
1/4	4.10	2 3/32	1 3/64	.....	...	...
3/8	5.10	2 11/32	1 11/64	.....	...	...
1/2	6.47	2 19/32	1 15/64	.....	...	...
3/4	8.94	3 5/32	1 31/64	.....	...	...
1	12.18	3 23/32	1 47/64	$32.33	4 3/8	4 1/4
1 1/4	16.67	4 7/32	1 63/64	41.04	4 7/8	4 5/8
1 1/2	20.76	4 23/32	2 15/64	49.74	5 1/2	5
2	33.57	5 11/16	2 23/32	74.61	6 1/2	6
2 1/2	60.93	6 5/8	3 1/4	113.16	7 1/2	7
3	85.80	8	3 3/4	156.69	8 7/8	7 1/2

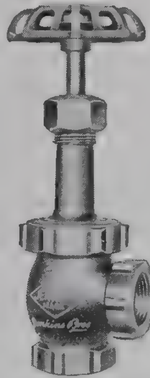
Jenkins 150-Lb. Regrind-Renew Bronze Globe and Angle Valves

500 Brinnell Stainless Steel Plug Disc and Seat Ring Union Bonnet

Screwed Ends
150 Pounds Steam at 500° F.
300 Pounds Non-Shock Cold Oil, Water, Gas



No. 546-P, Globe



No. 548-P, Angle

Recommended for severe services up to 150 psi. and temperatures to 500°F., such as encountered in steam, throttling and regulating.

Wide, steep (30° total taper) seating surfaces permit extremely close regulation of flow and drop-tight enclosure.

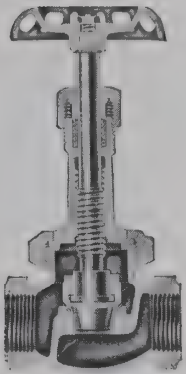
Tuffard aluminum bronze spindle has crowned head.

	No. 546-P, Globe		No. 548-P, Angle	
Size In.	Each	End to End, In.	Each	Ctr. to End, In.
1/4	$6.15	2 1/16	$6.15	1 1/16
3/8	7.64	2 5/16	7.64	1 3/16
1/2	8.66	2 19/32	8.66	1 1/4
3/4	10.82	3 5/32	10.82	1 1/2
1	14.24	3 23/32	14.24	1 3/4
1 1/4	20.28	4 7/32	20.28	2
1 1/2	27.33	4 23/32	27.33	2 1/4
2	39.87	5 11/16	39.87	2 23/32

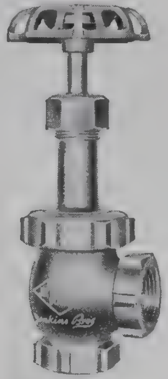
Jenkins 200-Lb. Regrind-Renew Bronze Globe and Angle Valves

500 Brinell Stainless Steel Plug Disc and Seat Ring Union Bonnet

Screwed Ends
200 Pounds Steam at 550°F
400 Pounds Non-Shock Cold Oil, Water, Gas



No. 556-P, Globe



No. 558-P, Angle

Recommended for the close control of steam or other fluids under severe conditions as usually encountered in throttling and regulating.

Wide, steep (30° total taper) seating surfaces permit extremely close regulation of flow and drop-tight closure.

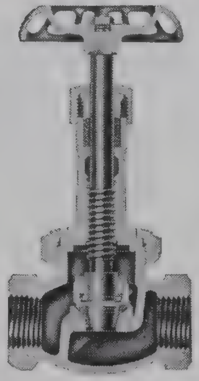
Tuffard aluminum bronze spindle has crowned head.

	No. 556-P, Globe		No. 558-P, Angle	
Size In.	Each	End to End, In.	Each	Ctr. to End, In.
1/4	$6.84	2 1/16	$6.84	1 1/16
3/8	8.43	2 5/16	8.43	1 3/16
1/2	9.68	2 19/32	9.68	1 1/4
3/4	12.08	3 5/32	12.08	1 1/2
1	15.72	3 23/32	15.72	1 3/4
1 1/4	22.44	4 7/32	22.44	2
1 1/2	30.75	4 23/32	30.75	2 1/4
2	44.42	5 11/16	44.42	2 3/4

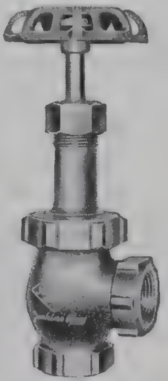
Jenkins 300-Lb. Regrind-Renew Bronze Globe and Angle Valves

500 Brinell Stainless Steel Plug and Seat Ring Union Bonnet

Screwed Ends
300 Pounds Steam at 550°F.
600 Pounds Non-Shock Cold Oil, Water, Gas



No. 576-P, Globe



No. 578-P, Angle

Designed to withstand severe service conditions encountered in throttling and regulating steam or other fluids.

Wide 30° total taper seating surfaces permit extremely close regulation of flow and drop-tight closure.

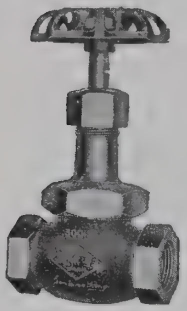
Tuffard aluminum spindle has crowned head for friction free bearing on the plug.

	No. 576-P, Globe		No. 578-P, Angle	
Size In.	Each	End to End. In.	Each	Ctr. to End, In.
1/4	$8.21	2 1/4	$8.21	1 3/32
3/8	8.88	2 1/2	8.88	1 3/16
1/2	10.94	2 7/8	10.94	1 3/8
3/4	15.15	3 1/2	15.15	1 11/16
1	20.96	4 1/8	20.96	2
1 1/4	27.33	4 11/16	27.33	2 1/4
1 1/2	35.76	5 1/4	35.76	2 1/2
2	54.68	6 1/4	54.68	3

Jenkins Bronze Regrind-Renew Globe and Angle Valves

Renewable Nickel-Alloy Bevel Seat Ring and Disc
Union Bonnet

Screwed Ends
300 Pounds Steam Pressure at 550°F.
600 Pounds Non-Shock Cold Oil, Water or Gas Pressure
Flanged Ends
300 Pounds Steam Pressure at 550°F.
500 Pounds Non-Shock Cold Oil, Water or Gas Pressure


No. 970, Globe Screwed

No. 972, Angle Screwed

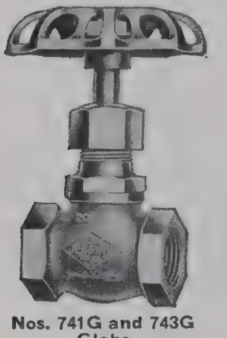
	Screwed			Flanged			
Size Inches	No. 970 Globe No. 972 Angle Each	Globe End to End Inches	Angle Center to End Inches	No. 971 Globe No. 973 Angle Each	Globe Face to Face Inches	Angle Center to Face Inches	Diam. Flange Inches
¼	$7.52	2¼	1³⁄₃₂	.....	...	...	...
⅜	7.98	2½	1³⁄₁₆	.....	...	...	...
½	9.68	2⅞	1⅜	.....	...	...	...
¾	13.67	3½	1¹¹⁄₁₆	*$35.31	...	2³¹⁄₃₂	4⅝
1	17.09	4⅛	2	39.87	5¹⁄₁₆	3⁷⁄₃₂	4⅞
1¼	22.79	4¹¹⁄₁₆	2¼	54.68	5⁹⁄₁₆	3¹⁵⁄₃₂	5¼
1½	29.61	5¼	2½	75.17	7	3⅞	6⅛
2	50.12	6¼	3	107.06	8	4⅜	6½
2½	79.73	7⅜	3⁹⁄₁₆	153.77	9	5	7½
3	125.28	8⅜	4¹⁄₁₆	227.79	10	5⁷⁄₁₆	8¼

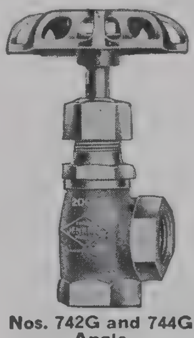
*No. 973 only.

Jenkins Bronze Needle Valves

With Follower Gland

200 Pounds Steam Working Pressure at 500°F.
400 Pounds Non-Shock Cold Oil, Water, Gas Pressure


Nos. 741G and 743G
Globe


Nos. 742G and 744G
Angle

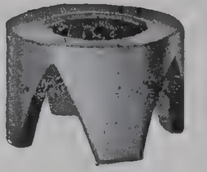
Suitable for controlling air, gas, gasoline, oil, and other fluids that require close regulations.

Made of high grade bronze. The bonnet is of the one-piece type. The wheel is malleable iron, enameled green.

Can be supplied with bronze spindle, or with stainless steel spindle, the latter when small seat openings are required for extremely close regulation. When so ordered, can be furnished with female unions.

	Steel Spindle		Bronze Spindle		Seat Openings —Inches—			
Size In.	No. 741-G Globe Each	No. 742-G Angle Each	No. 743-G Globe Each	No. 744-G Angle Each	Bronze Spindle	Steel Spindle	Globe End to End In.	Angle Center to End In.
⅛	$3.14	$3.30	$2.63	$2.73	⅛	¹⁄₁₆	1⁹⁄₁₆	²⁵⁄₃₂
¼	3.42	3.59	2.85	2.96	³⁄₁₆	¹⁄₁₆	1⅝	¹³⁄₁₆
⅜	3.71	4.10	3.08	3.42	¼	³⁄₃₂	1¹³⁄₁₆	²⁹⁄₃₂
½	4.38	5.07	3.65	4.22	⁵⁄₁₆	⅛	2⅛	1¹⁄₁₆
¾	6.15	6.84	5.14	5.70	⁷⁄₁₆	³⁄₁₆	2½	1¼

No. 344 Throttling Nuts for Jenkins Valves

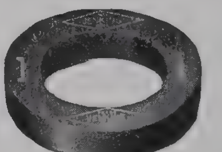


This nut is provided with projections which furnish the proper orifices to restrict the flow of steam or fluid so that the desired terminal pressure or the quantity of fluid passing through the valve may be controlled easily and accurately.

It is readily applied to any Jenkins standard pattern bronze globe, angle and cross valve by removing regular disc nut and substituting throttling nut. A valve so fitted is efficient for steam supply to a pump, heating kettle, etc.

Size......in.	¼	⅜	½	¾	1	1¼	1½	2	2½	3
No. 344...ea.	$.75	.75	.75	.81	.87	1.19	1.31	1.68	2.93	3.74

Jenkins Renewable Discs



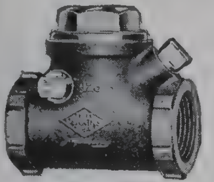
	Screw-Operated Valves —Globe, Angle and Y—			Pressure-Operated Valves —Check and Self-Closing—		
Service	Pressure Range, Lb.	Max. Temp.	Disc No.	Pressure Range, Lb.	Max. Temp.	Disc. No.
Saturated Steam	0 to 25	267°F.	110	0 to 50	298°F.	110
	25 to 150	366°F.	119-A	50 to 150	366°F.	119-A
	150 to 250	406°F.	1120	150 to 250	406°F.	269
Hot Water	0 to 50	250°F.	110	0 to 50	200°F.	294-S
	0 to 1000	300°F.	119-A	50 to 300	250°F.	110
				50 to 500	300°F.	119-A
Cold Water	0 to 300	115°F.	294-S	0 to 50	115°F.	24
	300 to 1000	115°F.	110	50 to 600	115°F.	294-S
				600 to 1000	115°F.	110
Air and Gas	Vac. to 300	Normal	294-S	Vac. to 50	Normal	24
	300 to 600	Normal	110	50 to 600	Normal	294-S
Oil	0 to 100	125°F.	936	0 to 100	125°F.	936
	0 to 250	250°F.	119-A	50 to 250	250°F.	119-A
	0 to 600	300°F.	1120			
Gasoline	0 to 75	Normal	936	0 to 75	Normal	936
	75 to 300	Normal	119-A	75 to 300	Normal	119-A

Specific disc recommendations for other services will be made on receipt of detailed service information.

Size In.	No. 24 Composition Each	No. 110 Composition Each	No. 119-A Composition Each	No. 269 Metal Each	No. 294-S Composition Each	No. 312 Teflon Each	No. 936 Composition Each	No. 1120 Bakelite Each
¼	$.59	$.15	$.15	....	$.15	$.38	$.23	$.69
⅜	.59	.20	.20	....	.20	.42	.30	.69
½	.59	.20	.20	....	.20	.48	.30	.69
¾	.69	.24	.24	....	.24	.77	.47	.77
1	.81	.32	.32	....	.32	1.25	.59	.93
1¼	.93	.47	.47	....	.47	1.98	.87	1.34
1½	1.16	.62	.62	....	.62	2.72	1.16	1.62
2	1.50	.93	.93	$2.04	.93	4.43	1.62	2.09
2½	1.86	1.05	1.05	2.90	1.05	7.38	3.24	3.24
3	2.21	1.74	1.74	4.56	1.74	12.44	5.22	4.41
3½	....	2.33	2.33	5.97	2.33	20.28	....	....
4	....	2.55	2.55	7.74	2.55	.....	....	....
5	....	3.48	3.48	10.13	3.48	.....	....	....
6	....	4.29	4.29	11.27	4.29	.....	....	....
8	....	8.70	8.70	17.25	8.70	.....	....	....
10	....	23.19	23.19	41.27	23.19	.....	....	....
12	....	34.79	34.79	58.86	34.79	.....	....	....

No. 92-A Jenkins Bronze Swing Check Valves

Horizontal
Regrinding Bronze Disc—Screw-In Cap



Screwed Ends
125 Pounds Steam Pressure at 500°F.
250 Pounds Non-Shock Cold Oil, Water, Gas

Exceptionally serviceable for the non-return control of steam, oil, water and gas. Disc is made of high tensile bronze, carefully machined to a smooth finish.

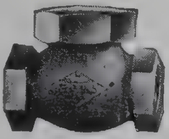
Size Inches	Each	E. to E. Inches	Ctr. to Top, In.	Size Inches	Each	E. to E. Inches	Ctr. to Top, In.
¼	$4.34	2	1 7/16	1¼	$9.11	3 13/16	2 7/16
⅜	4.34	2⅛	1 7/16	1½	11.04	4¼	2 23/32
½	4.89	2⅜	1 9/16	2	16.74	5¼	3 9/32
¾	5.58	2 13/16	1 27/32	2½	27.33	6 3/16	3¾
1	7.41	3 5/16	2 5/32	3	41.00	5 15/16	4 15/32

Jenkins Bronze Check Valves

Horizontal, Angle, and Vertical

Screwed Ends

For 150 Lb. Steam Working Pressure
For 300 Lb. Non-Shock Cold Oil, Water, Gas Working Pressure



No. 117-A, Horizontal

No. 118-A, Angle

No. 119, Vertical

Size Inches	No. 117-A Horiz. No. 118-A Angle Each	No. 119 Vertical Each	Horiz. End to End Inches	Angle Center to End Inches	Vertical End to End Inches
⅛	$3.72	$4.10	1 9/16	25/32	1¾
¼	3.72	4.10	2⅛	1 1/16	2⅜
⅜	4.22	4.65	2⅜	1 3/16	2¾
½	5.09	5.60	2⅝	1¼	3 3/16
¾	7.08	7.77	3 3/16	1½	3 9/16
1	9.95	10.94	3¾	1¾	4⅛
1¼	14.30	15.72	4¼	2	4½
1½	18.27	20.15	4¾	2¼	5¼
2	27.36	30.09	5 11/16	2¾	5 13/16
2½	52.23	57.45	6⅝	3¼	7⅜
3	74.61	82.08	8	3¾	9 1/16

No. 830 Jenkins Bronze Ball Check Valves

Phosphor Bronze Ball—Screw-In Cap

Screwed Ends
150 Pounds Steam Pressure at 500°F.
300 Pounds Non-Shock Cold Oil, Water or Gas Pressure

Body is made of Jenkins high tensile bronze. Stop guides integral with cap are machined to the same curvature as that of ball.

An apron, as part of the cap, extends below center of ball.

Tapped ends have full length pipe threads and are in accordance with Briggs Standard gages.

Size Inches	Each	End to End, In.	Size Inches	Each	End to End, In.
¼	$3.99	2⅛	1	$9.80	3 13/16
⅜	4.56	2⅜	1¼	14.81	4¼
½	5.13	2¾	1½	21.65	4¾
¾	7.07	3 5/16	2	31.89	5¾

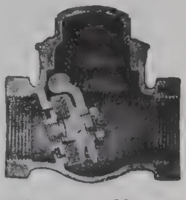
No. 352 Jenkins Bronze Swing Check Valves

Horizontal—Renewable Composition Disc

Screwed Ends
For 300 Pounds Non-Shock Cold Oil, Water or Gas Pressure

The angle of the seat permits a few inches of fluid to open this valve. The renewable composition disc has large seating surface; easily replaced when necessary.

Size Inches	Each	End to End Inches
¼	$7.46	1⅞
⅜	7.46	2 7/16
½	8.07	2¾
¾	9.95	3 5/16
1	13.68	3 13/16
1¼	17.40	4¼
1½	22.38	4⅞
2	36.06	5¾
2½	56.69	6⅝
3	89.54	7¾



Sectional View

Jenkins Bronze Regrinding Swing Check Valves

Horizontal

Screwed: 200 Pounds Steam at 550°F.
400 Pounds Non-Shock Cold Oil, Water, Gas Pressure
Flanged: 150 Pounds Steam at 550°F.
225 Pounds Non-Shock Cold Oil, Water, Gas Pressure

For condensate and return, feed and oil line service.

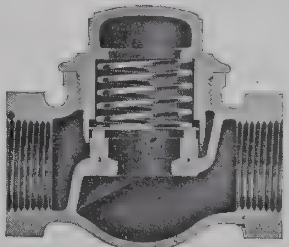
No. 762-A, Screwed

	No. 762-A, Screwed		No. 763-A, Flanged		
Size In.	Each	End to End In.	Each	Face to Face In.	Diam. Flange In.
¼	$5.58	2⅛	.....	...	
⅜	5.58	2¼	.....	...	...
½	5.93	2½	.....	...	..
¾	7.17	2 15/16	.....	...	...
1	9.11	3 7/16	$24.48	5	4¼
1¼	11.39	3 15/16	30.75	5½	4⅝
1½	14.46	4⅜	39.87	6 1/16	5
2	20.96	5⅜	61.50	7 5/16	6
2½	32.46	6 3/16	92.25	8 5/16	7
3	52.50	7 1/16	121.88	9	7½

No. 54 Jenkins Bronze Air Compressor Check Valves

Horizontal

For 300 Lb. Air Pressure



Designed to meet the requirements of severe air service up to 300 pounds pressure.

The disc, operating in a cage-like chamber, is of stainless steel. It is carefully machined, ground and lapped in the seat.

A light spring loads the disc.

Size.....in.	¼	⅜	½	¾	1	1¼	1½	2
No. 54...ea.	$9.20	9.32	10.07	13.05	15.23	19.28	24.87	33.57
End to End ....in.	2⅛	2⅜	2¾	3 5/16	3 13/16	4¼	4¾	5¾

No. 832 Jenkins Vertical Bronze Ball Check Valves

Phosphor Bronze Ball—Screw-In Cap

150 Pounds Steam Pressure at 500° F.

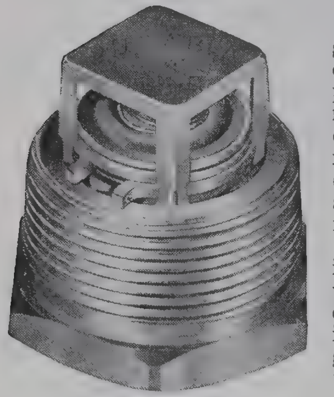
300 Pounds Non-Shock Cold Oil, Water, Gas Pressure

Screwed Ends

Size Inches	Each	Center to End Inches
¼	$3.99	2⅜
⅜	4.56	2¾
½	5.13	3 3/16
¾	7.07	3 9/16
1	9.80	4¼
1¼	14.81	4½
1½	21.65	5¼
2	31.89	5 13/16

Durabla Check Valves

300 PSI. Working Pressure at 500°F.



Basic check unit for any given nominal pipe size is combined with a standard pipe fitting of a pre-determined over-size, forming a check valve. Pipe fitting may be of any style, tee, cross, el, reducer, etc. usually one or two sizes over nominal.

Unaffected by any operating position; can be installed without line changes in existing lines or positioning in new installations. Has greater fluid-flow area through valve than actual pipe area, without excessive enlargement of line. Can also be obtained for flat-to-wall installation. Low pressure-drop, both at full capacity as well as throughout operating range.

With Ni-Resist or stainless steel seats. Valve, spring, snap ring and guard-cage are 18-8 stainless steel, and bushing portion, which screws into line is Ni-Resist. Seat member is threaded to fit all standard pipe fittings.

Pipe Line Size (Std. Taper Pipe Thrds.) .in.	⅜	½	¾	1	1¼	1½	2
Type BSS, Stainless...ea.	$7.48	7.48	10.30	10.87	13.18	24.35	50.05
Type BSN Stainless and Ni-Resist.......ea.	....	....	$8.02	8.53	10.81	14.36	21.07
Body Size Req. with Basic Check Unit...in.	1x⅜	1x½	1½x¾	2x1	2½x1¼	3x1½	4x2
Qty. Basic Check Units............Ctn.	12	12	8	6	2	2	1
Approx. Wt. per Ctn..lb.	5¼	5¼	8	8½	7¾	14½	10

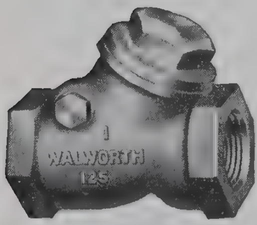
Standard line sizes of ⅜ through 2-inch line are stocked in basic unit style, having standard taper and threaded ends for use with all screwed fittings. For line sizes over 2 inches, flanged end connection is provided with either screwed or welded-line. Larger line sizes on request.

No. 406 Walworth Bronze Swing Check Valves

Bronze Disc

125 Pounds Saturated Steam Service Rating

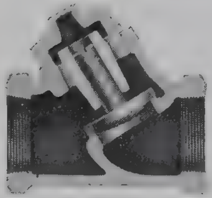
200 Pounds Non-Stock Cold Water, Oil and Gas



Size Inches	Each	End to End, In.
¼	$4.34	2 7/16
⅜	4.34	2 7/16
½	4.89	2⅝
¾	5.58	3⅛
1	7.41	3 11/16
1¼	9.11	4 7/16
1½	11.04	4¾
2	16.74	5⅝
2½	27.33	6 13/16
3	41.00	8

No. 4570 Hancock Bronze Stem Guided Check Valves

300 Pounds Pressure at 550°F.
600 Pound Non-Shock Oil, Water and Gas
Tested at 1000 Pounds Hydrostatic



For general service and especially designed for easy and positive opening on low heads. Will operate on less than 1 pound differential on vapors or non-viscous liquids.

Body and cap made of bronze, valve of hardened stainless steel.

Size..........inches	½	¾	1	1¼	1½	2
No. 4570........each	$11.00	13.00	16.50	20.00	26.60	39.00
End to End......in.	3	3 5/16	3 13/16	4⅜	5	5 15/16
Ctr. to Top.......in.	1⅝	1⅞	2⅛	2½	3	3⅞
Weight...........lb.	1¼	1½	2¼	3½	5	9½

No. 121 Jenkins Bronze Quick-Opening Self-Closing Valves

Renewable Composition Disc

300 Pounds Non-Shock Air or Gas Pressure

This valve is opened by a short pull of the lever which bears on the end of spindle forcing disc holder off the seat.

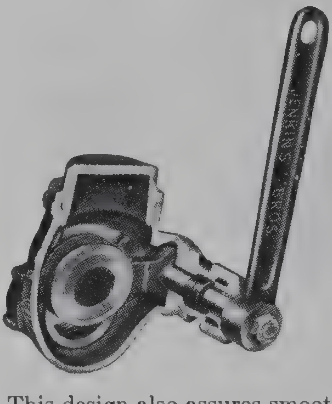
Releasing lever automatically closes valve.

Size In.	Each	Size In.	Each
¼	$9.32	1	$18.65
⅜	9.95	1¼	22.38
½	11.19	1½	33.57
¾	13.68	2	43.52

No. 302 Jenkins Swingtite Bronze Lever Operated Gate Valves

125 Lb. Steam Pressure

250 Lb. Non-Shock Cold Oil, Water, Gas Pressure



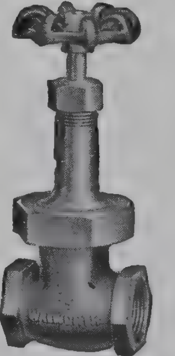
For installation where full, free, unobstructed flow is essential, where valve opening or closing must be instantaneous, and where head pressure and velocity is low. Fitted with a self-adjusting double-disc wedge which conforms to seat faces to assure maximum tightness. An exclusive design feature permits wedge to rotate on tracks cast in body, lengthening valve life as it prevents drag and resultant wear. This design also assures smooth, positive action.

Size................inches	½	¾	1	1¼	1½	2
Each..........................	$11.04	12.30	15.60	19.37	23.93	31.89
End to End ....inches	1⅞	2¼	2 9/16	2⅞	3¼	3 13/16
Length of Lever.....inches	4½	4⅞	5½	6½	7½	8
Center of Valve to End of Spindle..............inches	2⅛	2⅝	2⅞	3¼	3½	3 9/16

No. 3 Walworth Bronze Gate Valves

Rising Stem—Union Bonnet—Double Disc Taper Seat

Screwed Ends
125 Pounds Saturated Steam Service
200 Pounds Non-Shock Cold WOG
250 Pounds Hydrostatic Shell Test



Can be repacked under pressure when wide open.

Size In.	Each	End to End Inches
¼	$4.89	1⅞
⅜	4.89	1 15/16
½	5.70	2¼
¾	6.72	2½
1	7.98	2 13/16
1¼	10.71	3 1/16
1½	13.67	3¼
2	19.37	3 9/16
2½	31.44	4 5/16
3	46.70	4 9/16

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

Jenkins Bronze Gate Valves

Solid Wedge—Inside Screw—Non-Rising Spindle
125 Pounds Steam Pressure at 500°F.
200 Pounds Non-Shock Cold Oil, Water, Gas Pressure

No. 370 Screwed

Has a gland packing box. Fitted with malleable iron, non-heat handwheel.

	No. 370, Screwed		**—No. 371, Flanged—**		
Size Inches	Each	End to End Inches	Each	Face to Face Inches	Diam. Flange Inches
⅛	$4.89	1¾	.....	...	...
¼	4.89	1¾	.....	...	...
⅜	4.89	1¾	.....	...	...
½	5.70	1 15/16	.....	...	...
¾	6.72	2 5/16	.....	...	...
1	7.98	2 11/16	$25.05	3 15/16	4¼
1¼	10.71	3	30.75	4½	4⅝
1½	13.67	3⅜	38.72	4⅞	5
2	19.37	4	67.20	5¾	6
2½	31.44	4 11/16	85.43	6½	7
3	46.70	5⅜	102.51	7⅜	7½

No. 47-U Jenkins Bronze Gate Valves

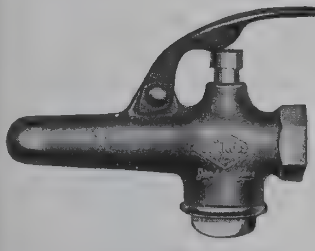
Solid Wedge—Union Bonnet—Inside Screw—Leveling Spindle

125 Pounds Steam Pressure at 500°F.
200 Pounds Non-Shock Cold Oil, Water, Gas Pressure

Size Inches	Each	End to End Inches
¼	$4.89	1¾
⅜	4.89	1¾
½	5.70	1 15/16
¾	6.72	2 5/16
1	7.98	2 11/16
1¼	10.71	3
1½	13.67	3⅜
2	19.37	4
2½	31.44	4 11/16
3	46.70	5⅜

Jenkins Hy-Lo Air Guns

With Special No. 946 Disc
For 150 Pounds Air Pressure


No. 610 with Lever Handle and Rounded Tip R

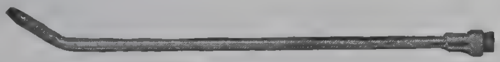
No. 609, with Push-Button and Rounded Tip R

For use on compressed air lines for blowing dust, dirt, chips, lint, filings, sand, borings and other matter. Prevents air waste; permits extremely close regulation of flow. Each gun is cast of high grade bronze and is carefully machined, assembled, inspected and tested.

Flat Tip B

Regularly fitted with a rounded tip; can be furnished with flat, pointed or extension tip as may be required. Overall length of extension tip, 9½ inches.

Pointed Tip C


Extension Tip D

Lever of No. 610 is malleable iron, enameled green, and shaped to fit the palm of the hand for easy operation.

With specially compounded disc; assures tightness.

With Rounded Tip R

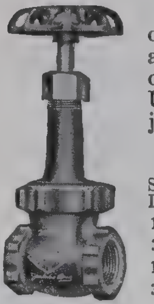
Size..........inches	⅛	¼	⅜
No. 609, with Push-Button......each	$3.75	$3.75	$3.98
No. 610, with Lever Handle.....each	3.75	3.75	3.98

Tips B, C or D can be furnished; prices on application.

No. 270-U Jenkins Bronze Gate Valves

Union Bonnet—Rising Spindle—Solid Wedge

Screwed Ends
For 200 Pounds Steam Pressure at 500°F.
For 400 Pounds Non-Shock Cold Oil, Water or Gas Pressure



Monel seat rings resistant to corrosion and destructive wear are expanded into body assuring long valve life since bronze wedge can be quickly and economically renewed. Union bonnet is liberally threaded for tight joint.

Size In.	Each	End to End In.	Diam. Hand-wheel In.	Size In.	Each	End to End In.	Diam Hand-wheel In.
¼	$6.95	2 1/16	2¼	1	$13.79	3	3¼
⅜	6.95	2 1/16	2¼	1¼	17.66	3⅜	3 11/16
½	8.31	2⅜	2 11/16	1½	22.10	3¾	4⅜
¾	9.92	2¾	3	2	34.17	4 5/16	4⅝

No. 280-U Jenkins Bronze Gate Valves

Solid Wedge—Union Bonnet—Inside Screw
Traveling Spindle

Screwed Ends
300 Pounds Steam Pressure at 550°F.
600 Pounds Non-Shock Cold Oil, or Gas Pressure

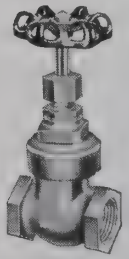
Furnished with a monel seat ring.

Size In.	Each	End to End Inches
¼	$11.06	2 7/16
⅜	11.06	2 7/16
½	12.87	2⅞
¾	15.50	3 3/16
1	19.37	3 9/16
1¼	31.89	4⅛
1½	41.00	4¾
2	56.96	5 7/16

No. 2500 O-B Bronze Gate Valves

With Flexitite Disc
Screwed Ends
For 100 Pounds Steam Working Pressure
150 Pounds Water, Oil, Gas Pressure

The body and bonnet are of a pressure resisting construction. The natural strength and rigidity of body is reinforced by cast ribs between neck of body and pipe ends.



Flexitite disc design combines slight flexibility with sturdy 1-piece construction. Handwheel is non-heating type. Can be packed under pressure.

Size Inches	Each	End to End, In.	Size Inches	Each	End to End, In.
¼	$3.00	1 11/16	1¼	$6.60	2 13/16
⅜	3.00	1 23/32	1½	8.40	3 1/32
½	3.50	2 3/32	2	12.00	3 1/16
¾	4.10	2¼	2½	22.50	4 1/16
1	4.90	2⅝	3	34.00	4 9/16

No. 2000 O-B Bronze Gate Valves

With Flexitite Disc—Non-Rising Stem
Screwed Ends
For 125 Lb. Steam Working Pressure—200 W.O.G.

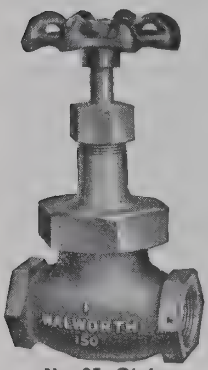
This valve shuts off tight under most severe service conditions. Flexitite disc is of design which combines slight flexibility with sturdy one-piece construction. Handwheel is non-heating type. Has packing gland. Can be packed under pressure. Valve is well proportioned, of sturdy design.

Size Inches	Each	End to End Inches	Size Inches	Each	End to End Inches
⅛	$3.90	1 13/16	1¼	$8.50	2 31/32
¼	3.90	1 25/32	1½	10.80	3 7/32
⅜	3.90	1 13/16	2	15.30	3⅝
½	4.50	2 7/32	2½	24.80	4 3/16
¾	5.30	2⅜	3	37.00	4 11/16
1	6.30	2¾	...	.....	....

Walworth Re-New-Disc Bronze Globe and Angle Valves

Renewable Asbestos Disc—Rising Stem—Union Bonnet

Screwed Ends
150 Pounds Steam Service Rating at 500°F.
300 Pounds Non-Shock Cold Water, Oil and Gas



No. 95, Globe

Regularly furnished with hard asbestos composition all-purpose disc, suitable for temperatures up to 500°F., and resistant to oil and gasoline at atmospheric temperatures.

Stuffing box has a gland, and is packed with molded packing.

Valve can be repacked under pressure when fully open.

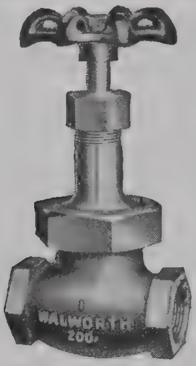
No. 96, Angle

Size Inches	No. 95, Globe Each	No. 95, Globe End to End Inches	No. 96, Angle Each	No. 96, Angle Center to End Inches
1/8	$3.77	1 15/16	$3.77	31/32
1/4	3.77	2	3.77	1
3/8	4.67	2 5/16	4.67	1 5/32
1/2	5.93	2 11/16	5.93	1 11/32
3/4	8.21	3 1/8	8.21	1 9/16
1	11.16	3 3/4	11.16	1 7/8
1 1/4	15.26	4 3/16	15.26	2 3/32
1 1/2	19.02	4 9/16	19.02	2 9/32
2	30.75	5 7/16	30.75	2 23/32
2 1/2	55.82	6 5/8	55.82	3 5/16
3	78.59	7 3/4	78.59	3 7/8

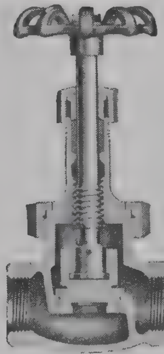
Walworth Bronze Globe and Angle Valves

Rising Stem—Union Bonnet

Screwed Ends
200 Pounds Steam Service Rating at 550°F.
400 Pounds Non-Shock Cold Water, Oil and Gas Service Rating



No. 245, Semi-Plug



No. 245P, Plug Cross Section

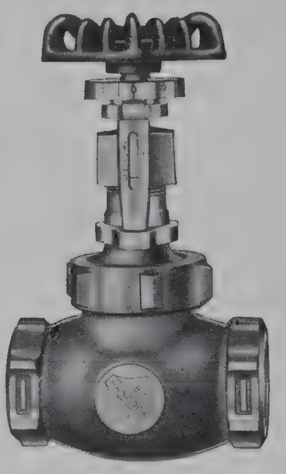
Packed with a special packing suitable for all services. Valve can be repacked under pressure when fully opened.

Size Inches	Semi-Plug Type Copper Metal Disc —Stainless Steel Seat Ring— No. 245 Globe Each	Semi-Plug Type Copper Metal Disc —Stainless Steel Seat Ring— No. 246 Angle Each	Plug Type 500 BHN —Discs and Seats— No. 245P Globe Each	Plug Type 500 BHN —Discs and Seats— No. 246P Angle Each	Globe End to End In.	Angle Ctr. to End In.
1/4	$6.50	$6.50	$6.84	$6.84	2	1
3/8	7.07	7.07	8.43	8.43	2 1/8	1 1/16
1/2	8.31	8.31	9.68	9.68	2 9/16	1 9/32
3/4	10.82	10.82	12.08	12.08	3 1/16	1 17/32
1	13.67	13.67	15.72	15.72	3 11/16	1 27/32
1 1/4	18.23	18.23	22.44	22.44	4 3/16	2 3/32
1 1/2	23.93	23.93	30.75	30.75	4 9/16	2 9/32
2	39.87	39.87	44.42	44.42	5 3/8	2 11/16
2 1/2	69.48	.....	79.73	79.73	6 9/16	3 9/32
3	100.23	.....	118.46	118.46	7 1/2	3 3/4

Hancock 150-Pound Bronze Flocontrol Globe and Angle Valves

Union Bonnet—Renewable Seat and Disc

Screwed Ends
For 150 Pounds Steam Working Pressure
For 300 Pounds Cold Water, Oil or Gas, Non Shock



For pin-point manual control of steam, liquids and gases. Both a valve and flow control instrument. Equipped with micrometer dial and pointer, attached to valve bonnet for setting within one hundredth turn of handwheel.

Scientifically designed V-Port valve disc assures proportional flow throughout entire lift of valve. Straight line flow. Shut-off seating surface entirely separate from controlling V-ports. Wire drawing and cutting action minimized. Separate shut off valve not needed.

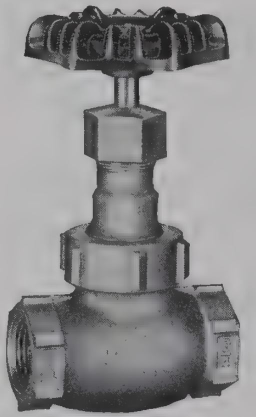
Stem and bonnet have standard, long-wearing acme threads.

Seats and discs of stainless steel, heat treated to 500 Brinell hardness.

Size Inches	No. 4445 Globe Each	No. 4445 Globe End to End Inches	No. 4455 Angle Each	No. 4455 Angle Ctr. to End Inches	Wt. Lb.
1/4	$10.48	2 3/8	$10.48	1 3/16	1 1/8
3/8	13.00	2 3/8	13.00	1 3/16	1 1/8
1/2	14.74	2 5/8	14.74	1 5/16	1 1/2
3/4	18.43	3	18.43	1 1/2	2 1/8
1	24.25	3 3/4	24.25	1 7/8	3 1/2
1 1/4	34.53	4 3/8	34.53	2 3/16	5 7/16
1 1/2	46.56	4 3/4	46.56	2 3/8	7 13/16
2	67.90	6	67.90	3	13

Hancock 500 Brinell Bronze Globe and Angle Valves

Stainless Steel, Heat-Treated, Renewable Plug Seats and Discs



No. 4420, Globe

Screwed Ends
Working Pressures:
Up to 150 Pounds, Saturated Steam
300 Pounds Cold Water,
Oil or Gas—Non Shock

Diaphragm construction is very strong. Renewable plug seats and discs heat-treated to 500 Brinell hardness. Honed to mirror-like finish. Eliminates wire drawing, steam cutting, erosion and corrosion. Not affected by boiler scale, pipe turnings or any other foreign substance that may enter the line.

Size In.	No. 4420, Globe Each	No. 4420, Globe End to End In.	No. 4430, Angle Each	No. 4430, Angle Ctr. to End In.
1/4	$5.40	2 3/8	$5.40	1 3/16
3/8	6.70	2 3/8	6.70	1 3/16
1/2	7.60	2 5/8	7.60	1 5/16
3/4	9.50	3	9.50	1 1/2
1	12.50	3 3/4	12.50	1 7/8
1 1/4	17.80	4 3/8	17.80	2 3/16
1 1/2	24.00	4 3/4	24.00	2 3/8
2	35.00	6	35.00	3

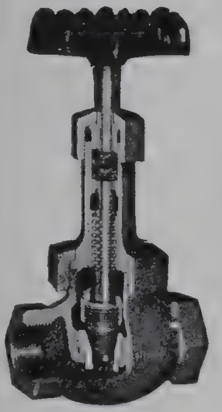
Hancock 500 Brinell Bronze Globe and Angle Valves

With Cone Seat—For Throttling Service
With Plug Seat—For Open and Shut Service

Screwed Ends
300 Pound Standard
Temperatures to 550°F.

Has an exceptionally hard seat and disc of heat-treated stainless steel (500 Brinell), which eliminates wire drawing, erosion, and corrosion.

Disc and disc nut can be completely removed without taking stem from bonnet.



No. 4582, Globe

Cone Seat

Size In.	Globe No.	Globe Face to Face In.	Angle No.	Angle Ctr. to Face In.	Each
¼	4582	2 5/16	4592	1 5/32	$7.55
⅜	4582	2½	4592	1¼	8.20
½	4582	2⅞	4592	1 7/16	10.10
¾	4582	3 9/16	4592	1 25/32	14.00
1	4582	4⅛	4592	2 1/16	19.30
1¼	4582	4⅞	4592	2 7/16	25.20
1½	4582	5¼	4592	2⅝	33.00
2	4582	6 7/16	4592	3 7/32	50.50

Plug Seat

Size In.	Globe No.	Globe Face to Face In.	Angle No.	Angle Ctr. to Face In.	Each
¼	4584	2 5/16	4594	1 5/32	$7.20
⅜	4584	2½	4594	1¼	7.80
½	4584	2⅞	4594	1 7/16	9.60
¾	4584	3 9/16	4594	1 25/32	13.30
1	4584	4⅛	4594	2 1/16	18.40
1¼	4584	4⅞	4594	2 7/16	24.00
1½	4584	5¼	4594	2⅝	31.40
2	4584	6 7/16	4594	3 7/32	48.00

Hancock Bronze Flocontrol Globe and Angle Valves

Screwed Ends

For 300 Pounds Working Steam Pressure

550°F. Total Temperature

750 Pounds Water (Non-Shock) 100°F.

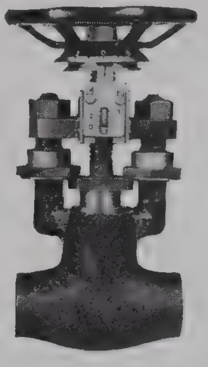
For controlling temperature, pressure, flow and for continuous blowdown.

Resists wire-drawing and cutting. Equipped with stainless steel seats and discs heat treated to 500 Brinell hardness. Hard enough to smash nails and boiler scale without leaving a trace on either seat or disc.

The valve seat and the V-ports in throttling disc are separated by some distance. Standard flocontrol valves have 4 V-ports, but 2 V-port flocontrols having just half the capacity will be furnished ¼ through ¾-inch, when specified, at no extra cost.

Unless otherwise specified, 4 V-port type will be furnished.

Size In.	Globe 4 V-Port No.	Globe 2 V-Port No.	Globe End to End, In.	Angle 4 V-Port No.	Angle 2 V-Port No.	Angle Ctr. to End, In.	Each
¼	4585	4586	2½	4595	4596	1¼	$23.55
⅜	4585	4586	2½	4595	4596	1¼	23.55
½	4585	4586	2⅞	4595	4596	1 9/16	29.70
¾	4585	4586	3 9/16	4595	4596	1	37.20
1	4585	....	4⅛	4595	....	2 1/16	51.10
1¼	4585	....	4⅞	4595	....	2 7/16	69.00
1½	4585	....	5¼	4595	....	2⅝	92.25
2	4585	....	6 7/16	4595	....	3 7/32	138.10



Hancock Steel Flocontrol Globe and Angle Weldvalves

For 800 Pound Working Steam Pressure, 775°F. Temperature
Flanged Ends for Oil, Gas, Water 1440 Pound Pressure 100°F. Temperature
Screwed Ends for Oil, Gas, Water 2000 Pound Pressure 100°F. Temperature

Cast steel body, steel yoke, and stainless steel stem, disc and seats.

Standard valves have 4 V-ports: valves with 2 V-ports (one-half capacity) will be furnished when specified, ¼ to ¾ inch inclusive.

Flocontrol valves with 2-V ports are designated by changing the fourth digit of the catalog No. from 5 to 6 (Example, No. 5616).

Screwed and Weld Ends

Size Inches	Globe Screwed Ends No.	Globe Weld Ends No.	Globe End to End In.	Angle Screwed Ends No.	Angle Weld Ends No.	Angle Ctr. to End In.	Each
¼	5615S	5615W	3⅛	5625S	5625W	1 9/16	$47.00
⅜	5615S	5615W	3⅛	5625S	5625W	1 9/16	47.00
½	5615S	5615W	3⅝	5625S	5625W	1 13/16	56.60
¾	5615S	5615W	4	5625S	5625W	2	66.00
1	5615S	5615W	4½	5625S	5625W	2¼	82.80
*1¼	5655S	5655W	5	5665S	5665W	2½	118.55
*1½	5655S	5655W	5¾	5665S	5665W	2⅞	179.00
*2	5655S	5655W	7	5665S	5665W	3½	245.00

Flanged Ends

A.S.A. Standards

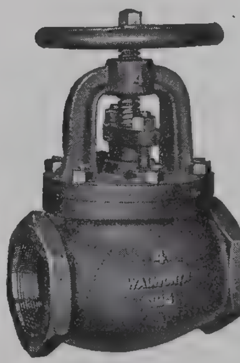
Size Inches	Globe No.	Globe Face to Face, In.	Angle No.	Angle Ctr. to Face, In.	Each
½	5615F	6½	5625F	3¼	$179.00
¾	5615F	7½	5625F	3¾	213.00
1	5615F	8½	5625F	4¼	233.50
*1¼	5655F	9	5665F	4½	299.50
*1½	5655F	9½	5665F	4¾	416.00
*2	5655F	11½	5665F	5¾	480.00

*Has bolted bonnet.

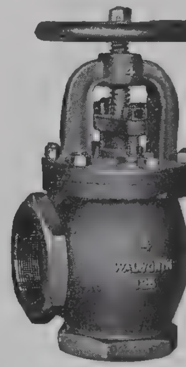
Walworth Iron Body Globe and Angle Valves

Yoke Top—Bronze Mounted or All Iron

For 125 Pounds Service Steam Pressure



No. 906, Globe, Screwed



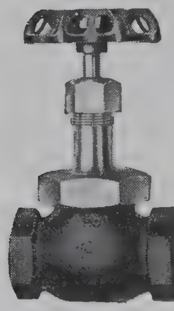
No. 907, Angle, Screwed

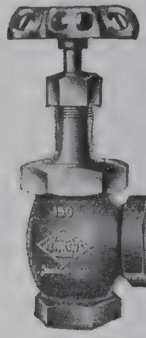
Size In.	Screwed Bronze Mounted No. 906 Globe No. 907 Angle Each	Screwed All Iron No. 906½ Globe No. 907½ Angle Each	Screwed Globe End to End In.	Screwed Angle Ctr. to End In.	Flanged Bronze Mounted No. 906F Globe No. 907F Angle Each	Flanged All Iron No. 906½F Globe No. 907½F Angle Each	Flanged Globe Face to Face In.	Flanged Angle Ctr. to Face In.	Diam. Flange In.
2	$41.00	$41.00	6½	3¼	$45.46	$45.56	8	4	6
2½	43.28	43.28	7	3½	48.98	48.98	8½	4¼	7
3	59.69	50.69	8	4	58.08	58.08	9½	4¾	7½
4	74.03	.....	10	5	87.14	87.14	11½	5¾	9
5	96.24	.....	11¼	5⅝	109.34	.....	13	6½	10
6	129.84	.....	13	6½	143.51	.....	14	7	11
8	......	.....	....	...	239.18	.....	19½	9¾	13½
10	......	.....	....	...	381.56	.....	24½	12¼	16

Jenkins Iron Body Regrind-Renew Globe and Angle Valves

Regrinding Disc and Seat Ring—Union Bonnet

Screwed Ends
150 Pounds Steam Pressure at 450°F.
250 Pounds Non-Shock Cold Oil, Water, Gas Pressure


No. 890 Globe


No. 892 Angle

The bevel-type nickel alloy disc is particularly able to withstand hard usage.

Disc can be reground without removing valve from line. Seat ring and disc are renewable.

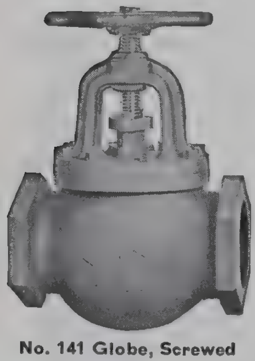
Union bonnet is easy to dismantle and reassemble, facilitating regrinding operation. Each valve is individually tested at the factory under hydrostatic pressures in excess of its basic rating.

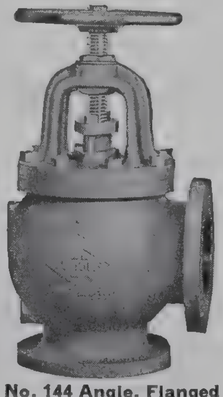
	No. 890 Globe		No. 892 Angle	
Size Inches	Each	End to End Inches	Each	Center to End Inches
⅜	$8.37	2⅝	$8.37	1 5/16
½	8.70	3	8.70	1½
¾	10.44	3⅝	10.44	1 13/16
1	12.62	4⅛	12.62	2 1/16
1¼	15.56	4⅝	15.56	2 5/16
1½	19.59	5¼	19.59	2⅝
2	25.89	6 5/16	25.89	3 5/32

Jenkins Iron Body Globe and Angle Valves

Renewable Composition Disc—Bronze Seat Ring
Outside Screw and Yoke

150 Pounds Steam Pressure
250 Pounds Non-Shock Cold Oil, Water, Gas Pressure


No. 141 Globe, Screwed


No. 144 Angle, Flanged

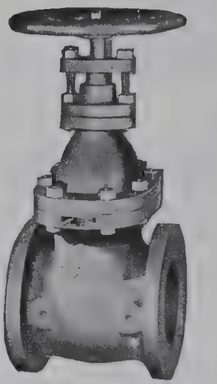
For the control of steam, fluids and gases where drop-tight closure is essential.

Has wide yoke, giving access to packing box which can be packed under full pressure when valve is wide open.

	Screwed			Flanged			
Size In.	No. 141 Globe, No. 143 Angle Each	End to End In.	Ctr. to End In.	No. 142 Globe, No. 144 Angle Each	Face to Face In.	Ctr. to Face In.	Diam. Flge. In.
2	$41.00	6½	3½	$45.56	7⅛	3⅞	6
2½	43.28	7¾	3⅞	48.98	8	4½	7
3	50.69	9⅜	4 11/16	58.08	9¼	4⅝	7½
3½	59.22	10	5	71.19	11	5⅜	8½
4	74.03	12	6	87.14	11¾	5⅞	9
5	.....	....	...	109.34	13⅛	6½	10
6	.....	....	...	143.51	16	8	11
8	.....	....	...	239.18	18½	9¼	13½
10	.....	....	...	381.56	21¼	10⅝	16

Jenkins Iron Body Gate Valves

Bronze Mounted—Inside Screw—Solid Wedge


No. 326 Flanged

Non-Rising Spindle

Pressures:
1½ to 16 Inch
125 Pounds Steam at 450°F. or 200 Pounds Non-Shock Cold Oil, Water, Gas
18 to 24 Inch
150 Pounds Steam at 450°F. or 175 Pounds Non-Shock Cold Oil, Water, Gas
30 to 36 Inch
For 125 Pounds Non-Shock Cold Oil, Water, Gas

Double face solid wedge type. Body and bonnet are made of high grade semi-steel. Seat rings are bronze and gate or wedge cast iron, faced with bronze rings firmly secured to wedge, except in the sizes up to 3 inches in which wedge is made entirely of bronze. Valve can be packed under pressure when wide open.

	Screwed		Flanged		
Size Inches	No. 325 Each	End to End Inches	No. 326 Each	Face to Face Inches	Diam. Flange Inches
1½	$34.17	4¾	....	...	...
2	38.73	5 7/16	$42.71	7	6
2½	40.44	5⅞	45.56	7½	7
3	44.99	6⅜	50.69	8	7½
3½	52.40	7	59.79	8½	8½
4	62.07	7½	71.19	9	9
5	86.57	8⅛	96.24	10	10
6	105.92	8½	116.18	10½	11
8	185.66	10¼	199.32	11½	13½
10	......	....	314.36	13	16
12	......	....	449.88	14	19
14	......	....	609.35	15	21
16	......	....	869.03	16	23½
18	......	....	1167.42	17	25
20	......	....	1799.54	18	27½
24	......	....	2847.38	20	32
30	......	....	3829.97	24	38¾
36	......	....	....	28	46

Jenkins Iron Body U-Bolt Gate Valves

Solid Wedge—Inside Screw— Traveling Spindle

Screwed Ends
150 Pounds Steam Pressure at 450°F.
225 Pounds Non-Shock Cold Oil, Water, Gas Pressure

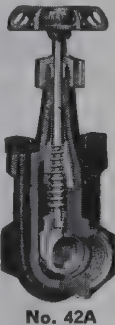
Flanged Ends
125 Pounds Steam Pressure at 450°F.
175 Pounds Non-Shock Cold Oil, Water, Gas Pressure

No. 40A

Bonnet-Saver-Bushing makes possible the cleaning out of any deposits that may have caked or become lodged in the bonnet.

Channels are cast in the bonnet to permit complete drainage when the valve is wide open and the pipe line drained, thus preventing freezing.

All iron valves equipped with traveling steel spindle, iron body bronze mounted valves equipped with traveling bronze spindle.


No. 42A

	Screwed			Flanged			
Size In.	No. 40A All Iron Each	No. 42A Iron Body Bronze Mounted Each	End to End Inches	No. 41A All Iron Each	No. 43A Iron Body Bronze Mounted Each	Face to Face Inches	Diam. Flange Inches
¼	$7.64	$7.98	1⅞	.....	.....	...	..
⅜	7.64	7.98	1⅞	.....	.....	...	...
½	7.98	8.43	2½	.....	.....	...	...
¾	8.31	9.00	2¾	.....	.....	...	...
1	8.66	10.37	3	.....	.....	...	...
1¼	9.57	12.08	3½	.....	.....	...	...
1½	10.71	13.89	3⅞	$18.23	$21.30	6	5
2	13.89	18.00	4⅜	22.22	26.19	7	6
2½	20.73	28.47	4⅞	29.04	37.02	7½	7
3	28.47	39.87	5½	37.02	48.41	8	7½

Jenkins Iron Body Gate Valves

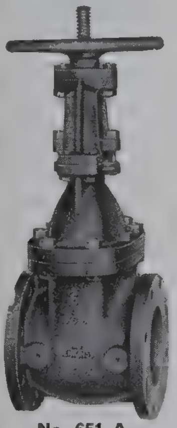
Bronze Mounted—Outside Screw and Yoke Rising Spindle—Solid Wedge

Pressures:

1½ to 12-Inch:	**125 Pounds Steam at 450°F.** **200 Pounds Non-Shock Cold Oil, Water, or Gas**
14 and 16-Inch:	**125 Pounds Steam at 450°F.** **150 Pounds Non-Shock Cold Oil, Water, or Gas**
18 to 24-Inch:	**Steel Valves Recommended for Steam Service** **150 Pounds Non-Shock Cold Oil, Water, or Gas**

Made of high grade cast iron; double face solid wedge type, bronze spindle and renewable bronze seat rings. Wedges up to and including 3 inches are cast of solid bronze; 3½ inches and larger are cast iron with bronze faces rolled in. Wedge has guide which is fitted to slide true and easy on ribs in body and thus prevent wedge face from chattering when partly open, or from touching seat except at point of final closing.

Valve can be packed under pressure when wide open.


No. 651-A Flanged

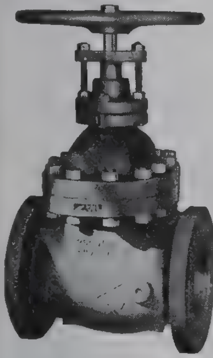
	No. 650-A —Screwed—		No. 651-A —Flanged—		
Size Inches	Each	End to End Inches	Each	Face to Face Inches	Diam. Flange Inches
1½	$45.56	4¾	....	...	...
2	45.56	5⁷⁄₁₆	$49.55	7	6
2½	48.98	5⅞	54.11	7½	7
3	58.65	6⅜	64.35	8	7½
3½	68.91	7	76.31	8½	8½
4	80.87	7½	89.97	9	9
5	106.49	8⅛	116.18	10	10
6	133.26	8½	143.51	10½	11
8	......	...	239.18	11½	13½
10	......	...	375.85	13	16
12	......	...	533.03	14	19
14	......	...	734.63	15	21
16	......	...	1019.36	16	23½
18	......	...	1349.66	17	25
20	......	...	2004.56	18	27½
24	......	...	3115.02	20	32
30	......	...	4144.62	24	38¾
36	......	...	....	28	46

Jenkins Iron Body Gate Valves

Solid Wedge

Bronze Mounted—Inside Screw—Non-Rising Spindle

250 Pounds Steam Pressure at 450°F.
500 Pounds Non-Shock Cold Oil, Water, Gas Pressure


No. 203, Flanged

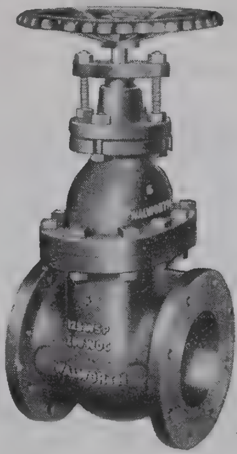
Suitable for steam and water service of all kinds under heavy pressures, and is especially adapted to meet the requirements of modern high pressure power plants.

Body is tapped and faced for seats at exactly the same angle as the faces of the wedge. Seat rings are made of hard bronze and screwed to shoulders which make perfect joints.

Wedge is tapered equally on both faces for tight closure; cast bronze up to 3-inch size, cast iron with bronze face in the larger sizes.

Pressure-containing parts are semi-steel, with a tensile strength of 34,000 pounds.

	No. 203A, Screwed		No. 203, Flanged		
Size Inches	Each	End to End Inches	Each	Face to Face Inches	Diam. Flange Inches
2	$67.32	7	$72.93	8½	6½
2½	85.28	8	92.01	9½	7½
3	105.47	9	114.45	11⅛	8¼
3½	......	..	129.03	11⅞	9
4	132.39	11	149.22	12	10
5	......	..	195.23	15	11
6	......	..	252.45	15⅞	12½
8	......	..	452.16	16½	15
10	......	..	608.13	18	17½
12	......	..	869.55	19¾	20½


Flanged

Walworth Iron Body Gate Valves

Wedge Gate—Non-Rising Stem Bronze Mounted or All Iron

125 Pounds Steam Service Rating
Non-Shock Cold Water, Oil, and Gas:
2 to 12 Inches, 200 Pounds
14 and 16 Inches, 150 Pounds

Bronze mounted with bronze stem, seat rings, and disc faces. All iron with nickel-plated steel stem, integral disc faces and renewable seat rings. Flanged valves furnished faced and drilled unless otherwise ordered. No reduction in price for faced only.

Can be repacked under pressure when wide open.

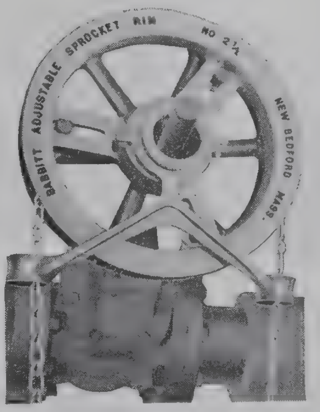
	—Screwed—		—Flanged—		
Size In.	No. 719 Bronze Mounted No. 720 All Iron Each	End to End In.	No. 719F Bronze Mounted No. 720F All Iron Each	Face to Face In.	Diam. Flange In.
2	$38.73	6⅛	$42.71	7	6
2½	40.44	6¾	45.56	7½	7
3	44.99	7⅛	50.69	8	7½
4	62.07	7¾	71.19	9	9
5	*86.57	8¼	96.24	10	10
6	105.92	8¾	116.18	10½	11
8	185.66	10	199.32	11½	13½
10	......	....	314.36	13	16
12	......	....	449.88	14	19
14	......	....	*609.35	15	21
16	......	....	*869.03	16	23½

*Furnished bronze mounted only.

Sizes 2, 2½, 3, 4, 6, 8, 10, and 12 inches conform to A.P.I. standard 6D-175 pound.

Babbitt Adjustable Sprocket Rims

With Chain Guides



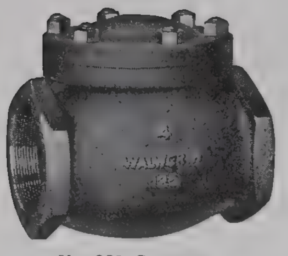
Cast iron. Every valve in overhead pipe line should be equipped for immediate operation from floor. Adjustable sprocket rim gives quick control: simply pull chain. Adjustable rim quickly attached to any type valve wheel, whether used to control flow of steam, gas water or other liquids. Does not interfere with rising stem. **When ordering,** give diameter of valve wheel to be fitted and No. of feet of chain required.

No.	Each	Rust-proof Chain per Foot	Diameter Sprocket Wheel Inches	Will Fit Valve Wheels, Diameter Inches
0	$6.00	$.16	4	2 to 4
1	10.00	.20	5⅞	4⅛ to 5⅞
1½	13.00	.20	7½	6 to 7½
2	16.00	.20	9	7¾ to 9
2½	22.00	.32	12½	9¼ to 12½
3	27.00	.32	15½	12¾ to 15½
3½	38.00	.32	19	15¾ to 19
4	50.00	.48	22	19¼ to 22
4½	70.00	.48	26	22¼ to 26
5	80.00	.48	30	26¼ to 30

Walworth Iron Body Check Valves

Horizontal Lift Check—Bronze Mounted

For 125 Pounds Steam Working Pressure



No. 920, Screwed

No. 920F, Flanged

Flanged valves are shipped faced and drilled unless otherwise specified. No reduction in price for faced only.

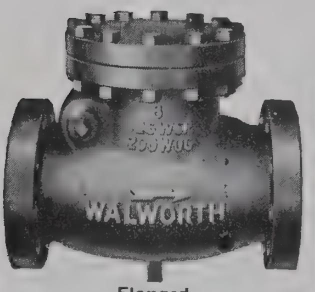
For larger sizes, swing check valves are recommended.

Size In.	No. 920, Screwed Each	No. 920, Screwed End to End In.	No. 920F, Flanged Each	No. 920F, Flanged Face to Face In.	No. 920F, Flanged Diam. Flanges In.
2	$15.38	6½	....	...	.
2½	21.65	7	....	...	.
3	28.47	8	$33.60	9½	7½
4	48.98	10	56.39	11½	9
5	.....	..	84.29	13	10
6	.....	..	115.04	14	11

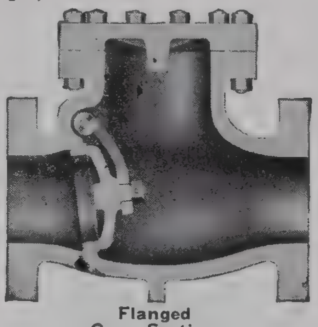
Walworth Iron Body Swing Check Valves

Bronze Mounted or All Iron

125 Pounds Service Steam Pressure and Non-Shock Service
Cold Water, Oil and Gas Pressure
12 Inches and Smaller, 200 Pounds
14 Inches and Larger, 150 Pounds



Flanged



Flanged
Cross Section

Discs swing completely out of the waterway.

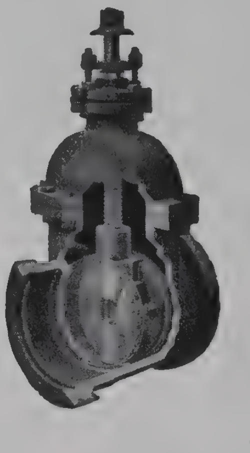
For use in the vertical position, prefix letter M to valve No. desired.

Size In.	Screwed: No. 928 Bronze Mounted Each	Screwed: No. 928½ All Iron Each	Screwed: No. 929 Bronze Mounted Cmpsit. Disc Each	Screwed: End to End In.	Flanged Faced and Drilled: No. 928F Bronze Mounted Each	Flanged Faced and Drilled: No. 928½ All Iron Each	Flanged Faced and Drilled: No. 929F Bronze Mounted Cmpsit. Disc Each	Flanged Faced and Drilled: Face to Face In.	Flanged Faced and Drilled: Diam. Flge. In.
2	$20.51	$20.50	$23.46	7¼	$23.93	$23.93	$26.88	8	6
2½	22.22	.....	26.43	8	27.33	27.33	31.55	8½	7
3	27.33	27.33	32.01	9¼	34.17	34.17	38.84	9½	7½
4	46.70	46.70	53.31	10¾	55.25	55.25	61.85	11½	9
5	60.93	.....	70.05	12¼	70.62	70.62	79.73	13	10
6	76.88	.....	89.07	13⅜	87.14	87.14	99.32	14	11
8	.....	.....	.....	....	184.52	184.52	201.26	19½	13½
10	.....	.....	.....	....	296.13	......	318.90	24½	16
12	.....	.....	.....	....	406.61	......	443.06	27½	19
14	.....	.....	.....	....	726.65	......	......	28	21
16	.....	.....	.....	....	1149.84	......	......	30	23½
20	.....	.....	.....	....	1782.89	......	......	36	27½

Mueller Hub End Water Works Gate Valves

A.W.W.A. Standard

For 175 Pounds Water Working Pressure
Tested to 300 Pounds Hydrostatic Pressure



Fully bronze mounted and is of double disc type, with parallel seats. Furnished with bronze packing ring for stuffing boxes, bronze nuts on stuffing box bolts, and malleable iron gland followers. Coated with two coats of pitch tar varnish composition.

In closing the valve, no pressure is applied to the gates until they are lowered into position directly opposite the openings of the valve. At the moment of closing, the bottom wedge nut comes in contact with a rib in the bottom of the valve causing an equalized pressure from both top and bottom and forcing the two side spreaders outwardly, thereby holding the valve discs firmly against the seats.

In opening, all pressure is removed from the discs before they are lifted out of position, removing all strain from the valve stem and eliminating the abrasive action of the disc ring against the seat ring.

Cadmium-plated stuffing box bolts with bronze nuts prevent corrosion and make it easy to repack stuffing box.

Made in sizes ranging from 2 to 48 inches with either double hub (bell end), hub and spigot, double spigot, flanges, flange and hub, screwed or universal joints.

Type of connections should be indicated when ordering. Prices upon application.

Mueller Fire Hydrants

Underwriters' Approved

No. A-20030
2-Way
Standard

The 5¼-inch hydrants are the 2-way type with two 2½-inch hose nozzles threaded into barrel. Also furnished with two 2½-inch independent gate valves with male threading on one end and the other end flanged and bolted to hydrant barrel. Also furnished minus the independent hose gates with wooden blocks bolted to flanged outlets so that other standard Underwriters' independent hose gate valves can be bolted on to them. Also can furnish nozzle caps and chains.

Has a long bonnet or hood section and the bottom flange is bolted to the barrel section just above the ground surface.

The 6¼-inch hydrants built similarly except that they are of the 3-way type. Not made with screwed-in nozzle. Regularly furnished with 6-inch hub inlet.

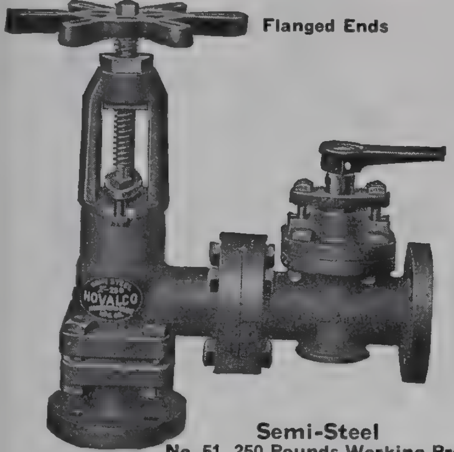
No. A-20035
2-Way Ind.
Gate Nozzle

Valve Opening.....................inches		5¼	6¼
No. of 2½-Inch Hose Nozzles............		2	3
No..........................	A-20030	A-20035	A-20040
5-Foot Bury..............each	$178.75	213.65	279.05
For Each 6-Inch Variation in Bury Add or Deduct....each	4.70	4.70	5.55

Optional Equipment

8-Inch Hub End Bottom Connection............add	$3.15
6-Inch Flanged or Universal Bottom Connection.add	4.70
8-Inch Flanged or Universal Bottom Connection.add	8.70
5-Inch Mechanical Joint Connection................	....
8-Inch Mechanical Joint Connection................	....

Hovalco-Homestead Combination Boiler Blow-Off Valves



Flanged Ends

Meets requirements of all States where boiler codes specify two valves to be used on the blow-off line.

Meets the requirements of the A.S.M.E. boiler code.

American Standard flanged dimensions apply.

Semi-Steel

No. 51, 250 Pounds Working Pressure

Cast Steel

No. 51S, 300 Pounds Working Pressure

Size...inches	1½	2	2½
No. 51...each	$74.00	80.35	93.05
No. 51S...each	203.50	230.35	268.75
Face Inlet to Ctr. Outlet...inches	11½	13¾	15⅜
Face Outlet to Ctr. Inlet...inches	5¹⁄₁₆	6³⁄₁₆	6¾

Cast Steel—Monel Trimmed

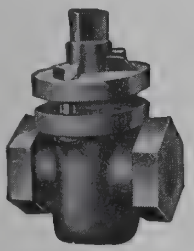
No. 51MS, 400 Pounds Working Pressure
No. 51MS6, 600 Pounds Working Pressure

Size...inches	1½	2	2½
No. 51MS...each	$232.20	257.10	311.60
No. 51MS6...each	235.25	261.00	319.40
Face Inlet to Ctr. Outlet...inches	12⅛	14¾	16⅜
Face Outlet to Ctr. Inlet...inches	5⁵⁄₁₆	6⁷⁄₁₆	7

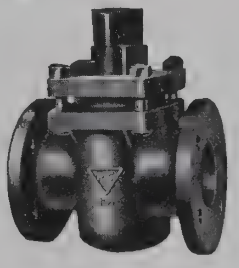
NOTE.—A.S.M.E. specifies that steel valves be used on working pressures greater than 200 pounds, on boiler blow-off service.

Pratt & Cady Iron Cocks

Straightway
Bushing Inserted—Asbestos Packed
125 Pounds Steam Working Pressure
175 Pounds O.W.G. Working Pressure
350 Pounds Hydrostatic Test Pressure



No. 246-D, Screwed
Sizes ½ to 2 In., 2-Bolt Gland
Sizes 2½ to 4 In., 4-Bolt Gland



No. 246-F, Flanged
Sizes 1 to 2 In., 2-Bolt Gland
Sizes 2½ to 4 In., 4-Bolt Gland

For quick shut-off in a full-flow line. May be used successfully on steam, water, oil, gas and many other solutions of chemical process industries.

All parts are of Elec-Iron, high quality cast iron made by the electric furnace process.

A molded, vulcanized asbestos bushing inserted into body provides bearing surface for plug. Bushing is easily renewable without removing cock from line.

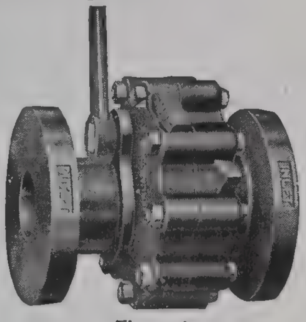
	No. 246-D, Screwed		No. 246-F, Flanged		
Size In.	Each	End to End Inches	Each	Face to Face Inches	Diam. Flange Inches
½	$6.00	3	......	....	...
¾	8.50	3⅜	......	....	...
1	9.50	4	$10.50	5½	4¼
1¼	12.00	4⅝	14.50	5¾	4⅝
1½	17.00	5¼	19.00	5⅞	5
2	20.00	6	24.00	7⅛	6
2½	34.00	7	40.00	8¼	7
3	50.00	8⅛	60.00	9¼	7½
3½	76.00	8¾	90.00	10¼	8½
4	90.00	9½	105.00	11½	9

Model W Everlasting Iron Body Blow-Off Valves

For 250 Pounds Steam Working Pressure

OPEN
SHUT
EVERLASTING VALVE

Screwed



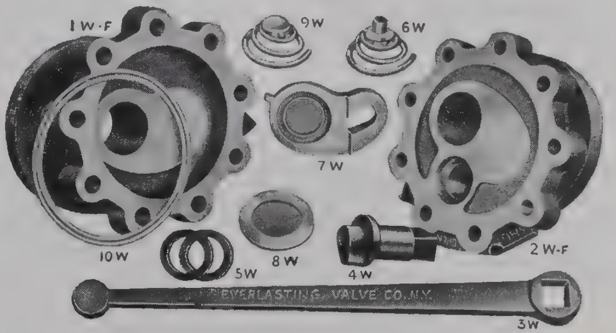
Flanged

Designed to give continual, uninterrupted service, being self-grinding and self-compensating at all points. Every valve is carefully inspected and tested; all valves for boiler and other high pressure service are worked under 250 pounds steam pressure before leaving the factory.

	Screwed			Flanged			
Size In.	No. 4000 Straight Lever Each	No. 4010 Rack and Pinion Each	End to End In.	No. 4001 Straight Lever Each	No. 4011 Rack and Pinion Each	Face to Face In.	Diam. Flanges In.
⅜	$16.00	.....	2½	.....	.....	....	....
½	16.00	.....	2½	.....	.....	....	....
¾	19.00	.....	3	.....	.....	....	....
1	21.00	.....	3½	$38.00	.....	7¼	4⅞
1¼	24.00	.....	3⅜	41.00	.....	7¼	5¼
1½	32.00	$45.00	4¼	42.00	$56.00	8⅛	6⅛
2	36.00	50.00	4⅜	45.00	62.00	8⅞	6½
2½	46.00	57.00	5⅛	63.00	70.00	10¼	7½
3	81.00	104.00	6⅜	100.00	118.00	11⅞	8¼
4	107.00	135.00	6⅞	146.00	163.00	12	10
5	*	.....	7	*	.....	12½	11
6	*	.....	7½	*	.....	13	12½

*Prices on application.

Parts for Model W Everlasting Blow-Off Valves



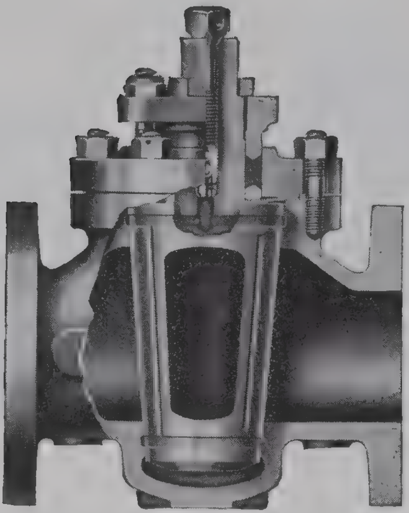
The seat of this valve is not merely a ring and a resting place for the disc, but is a plane and a support for the disc throughout the arc of travel.

The disc does not rise from the seat. The inlet is tapered and is slightly less in diameter than the outlet. When valve is wide open, the stream passes straight through without injury to the seat.

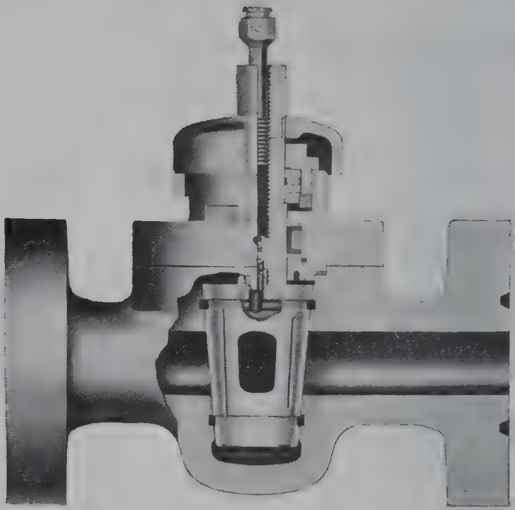
When ordering, give size of valve and state whether parts for screwed or flanged valves are desired.

Part No.	Description	Each
1WF	Top Bonnet, Flanged	....
2WF	Bottom Bonnet, Flanged	....
3W	Wrench	....
4W	Post	....
5W	Post Gasket Set	....
6W	Post Spring (Conical)	....
7W	Lever Arm	....
8W	Disc	....
9W	Disc Spring (Conical)	....
10W	Body Gasket	....

Walworth Lubricated Plug Valves



Plain Top Type



Ball Bearing Type

Plain Top Type

The Plain Top Lubricated Plug Valve possesses all the advantages of the unlubricated plug valve and, in addition, its lapped surfaces are completely sealed with the valve in either the open or closed position. This seal is effected by forcing a resistant lubricant under high pressure through a grooving system which completely encircles the ports of the valve, as well as the top and bottom of the plug.

Suitable automatic cutoffs are provided in order to prevent loss of lubricant pressure when a groove is uncovered by the valve port while the valve is being operated. It should be noted that only the uncovered groove is cut off from the lubricant pressure, leaving the full lubricant pressure to act on the balance of the lubricant system.

These valves are available for any of the pressure conditions usually encountered in industrial valve installations. They are made of: Walworth Steeliron, steel, corrosion resisting steel, ni-resist, acid resisting bronze, valve bronze, and various other metals.

Ball Bearing Type

In the Ball Bearing Type Lubricated Plug Valve, the plug retainer or cover, combines a thrust ball bearing housing with a sealed stuffing box in one compact unit.

The upward thrust of the plug, due to lubricant and line pressures is accurately controlled by a complete adjustable ball bearing unit of the grooved raceway type.

With the newly designed sealed stuffing box, the only packing material in contact with the valve stem is Teflon Packing Rings. Under hydraulic pressure built up by a packing screw, the plastic packing used in the stuffing box of this line of valves forces the Teflon into contact with the valve stem. This eliminates freezing of the plastic packing to the valve stem and reduces the initial turning (break-out) torque. Ball bearing valves are lubricated and operated the same as plain top types. Adjustments of plug are made by means of adjusting nut and lock nut on top of yoke.

These valves also include the pressure Sealed Lubrication features.

Lubricant

Lubricant offers a most effective means of reducing friction in the operation of a plug valve, freeing the plug should it become stuck, and combating corrosion by giving the seating surfaces a protective coating. In addition, lubricant seals the valve against leakage in either the open or closed position as the ports of Walworth Lubricated Plug Valves are completely encircled by a frame of lubricant grooves.

There are a number of services where the lubricant requirements are particularly difficult because the pipe line contents have more than one characteristic. For instance, such a service is a mixture of acid and petroleum hydrocarbons, or a mixture of steam and petroleum hydrocarbons. While it is easy to make a lubricant that will handle these services separately, it is much more difficult to make one that will satisfactorily handle the mixture. In a case of this kind, it is necessary that a compromise be made.

Pressure Ratings

Walworth, Steeliron Valves

Class	Sizes	Max. Water, Oil, and Gas Working Pressure, Lb. 450° F Max.	Max. Water, Oil, and Gas Working Pressure, Lb. 150° F Max.
175WOG	4 Inches and Smaller	*125	175
200WOG	14 Inches and Larger	125	175
200WOG	12 Inches and Smaller	125	200
400WOG	All	250	400
500WOG	All	300	500
800WOG	All	...	800

*At 250°F. maximum.

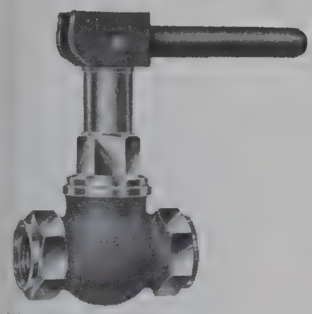
Steeliron valves are made from higher strength cast iron, which meets the requirements of Class B of the A.S.T.M. Specification A126 (Walworth W302).

Bodies of Walworth steel lubricated plug valves are made of cast carbon steel meeting the requirements of A.S.T.M. Specification A-216-T Grade WCB.

For Steel valve ratings see Pressure-Temperature Ratings, ASA B16.5-1953.

No. 320 Homestead Quick Opening Air Valves

Screwed Ends
For 150 Pounds Air Pressure



This shut-off valve for air, water or gas lines gives quick and positive action, eliminating waste due to leakage.

Can be opened and closed by one movement of the operator's hand and the position of the handle always indicates whether the valve is open or closed.

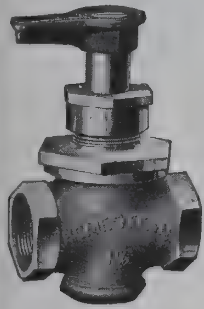
It automatically locks itself in either position and can be changed instantly from one to the other.

Size.......inches	½	⅜	¾
No. 320.......each	$4.89	4.89	6.54

Homestead Brass Straightway Valves

For 200 Pounds Working Pressure Below 400°F.

Valve 2 inches and larger have bonnets bolted on.



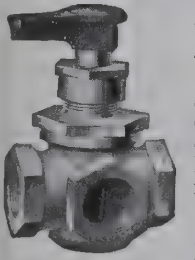
No. 2 Screwed

	No. 2 Screwed		No. 3 Flanged		
Size In.	Each	End to End. in	Each	Face to Face, In.	Diam. Flge., In.
¼	$8.52	2⅛	......	...	...
⅜	8.52	2⅛	......	...	...
½	8.52	2⅝	......	...	...
¾	9.90	3⅛	......	...	...
1	15.51	3¼	*	5⅝	4¼
1¼	18.92	4⅛	*	5⅞	4⅝
1½	23.45	4⅜	$59.40	6¼	5
2	42.35	6½	72.82	7⅜	6
2½	61.32	6½	98.89	8	7
3	117.70	8½	156.20	9⅝	7½
4	*	11½	*	11⅛	9
6	*	15½	*	15½	11

*Prices on application.

Homestead Brass Three-Way Valves

For 200 Pounds Working Pressure Below 400°F.

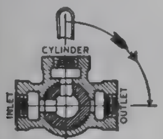


No. 9, Screwed

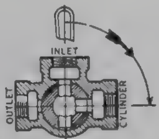
For handling fluids which do not attack brass on temperatures not exceeding 400°F.

The sectional cuts show styles of port arrangement and illustrate the relation of ports in the plug and body, and the direction of travel of the plug with the handle. Sizes up to and including 1¼ inches have a handle travel of 120°. All other valves have a handle travel of 90° and the operating handle in these cases lines up with the ports as shown.

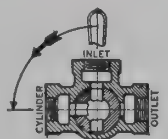
When ordering, specify style of port arrangement desired. Style D will be furnished unless otherwise specified.



Style D
2-Port Plug



Style E
3-Port Plug

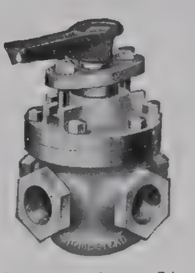


Style F
3-Port Plug

	No. 9, Screwed		No. 10, Flanged				
Size In.	Each	End to End Inches	Each	Extra for Drilling	Face to Face Inches	Diam. Flange Inches	Thick. Flange Inches
¼	$12.87	2⅜	......	....	....	....	..
⅜	12.87	2⅜	......	....	....	....	...
½	12.87	2^{15}⁄$_{16}$	......	....	....	....	...
¾	14.57	3^{1}⁄$_{16}$	......	....	....	....	...
1	24.42	4⅛	......	....	....	....	..
1¼	28.27	4¾	......	....	....	....	...
1½	36.85	5¼	$82.28	....	6¾	5	^{9}⁄$_{16}$
2	68.64	6	117.15	....	8¼	6	⅝
2½	150.15	9	164.45	....	9¼	7	^{11}⁄$_{16}$
3	192.50	10⅞	235.40	....	10⅞	7½	¾
4	......	13	422.40	....	13	9	^{15}⁄$_{16}$
6	......	15½	......	....	16½	11	1

Homestead Brass Four-Way Valves

Screwed Ends
No. 14 for 200 Pounds Working Pressure
No. 14-D for 1500 Pounds Working Pressure



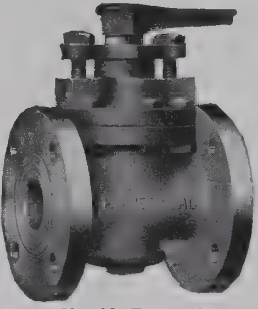
Designed only to change the direction of fluid flow. Should not be used when necessary that the flow thru all ports be stopped at the same time.

Four-way valves are used on water, air, oil, gas, etc., wherever this type of valve is suitable to conditions and where the fluid handled does not attack brass. Price includes handle.

Size.....in.	⅜	½	¾	1	1¼	1½	2
No. 14...ea.	$18.09	19.80	22.44	35.75	......	......	......
No. 14D.ea.	......	$60.28	71.72	94.05	136.95	173.80	235.40

Homestead Semi-Steel Body Straightway Valves

Brass Plug
For 250 Pounds Working Pressure



No. 18, Flanged

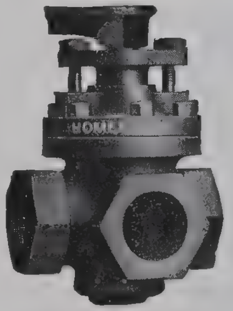
*Price on application.

For air and cold water service. Price includes handle.

	No. 17, Screwed		No. 18, Flanged	
Size In.	Each	End to End, In.	Each	Face to Face, In.
½	$14.25	3⅞	......	....
¾	14.25	3⅞	......	....
1	15.70	4	......	....
1¼	18.40	4⅜	......	....
1½	27.00	5⅛	$39.85	7¼
2	34.20	6½	44.80	8¼
2½	50.50	7¼	67.55	9⅜
3	88.00	10⅜	116.65	11⅜
4	139.00	12½	170.70	12½
5	*	14½	*	15½
6	*	16¼	*	16¼

Homestead Semi-Steel 3-Way Valves

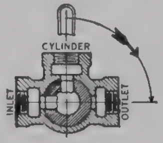
Brass Plug
For 200 Pounds Working Pressure



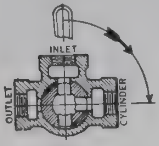
No. 19, Screwed

For air, water, gas and other fluids which do not attack brass or semi-steel at 100°F. or less.

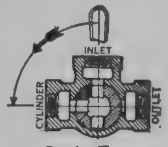
The sectional cuts show styles of port arrangement and illustrate the relation of ports in the plug and body, and the direction of travel of the plug with the handle. Handle travel, 90°; handle lines up with the ports as shown. **When ordering,** specify style of port arrangement desired. Style D will be furnished unless otherwise specified.



Style D
Two Port Plug



Style E
Three Port Plug



Style F
Three Port Plug

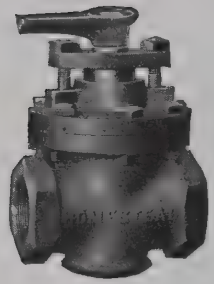
	No. 19, Screwed		No. 20, Flanged			
Size In.	Each	End to End In.	Each	Face to Face In.	Flange Diam. In.	Flange Thick. In.
½	$29.90	4½	......	....	....	...
¾	29.90	4½	......	....	....	...
1	35.55	4½	......	....	....	...
1¼	48.00	5⅞	.	....	....	...
1½	54.00	5⅞	$71.10	7½	6⅛	^{13}⁄$_{16}$
2	64.00	8⅝	85.35	9	6½	⅞
2½	96.75	9¼	107.40	10	7½	1
3	139.40	12½	192.00	11½	8¼	1⅛
4	227.60	12⅞	256.00	14⅝	10	1¼
5	...†..	16	...†..	16	11	1⅜
6	...†..	16½	...†..	17	12½	1^{7}⁄$_{16}$
*8	......	....	...†..	25	15	1⅝

*For low pressure service only. †Price on application.

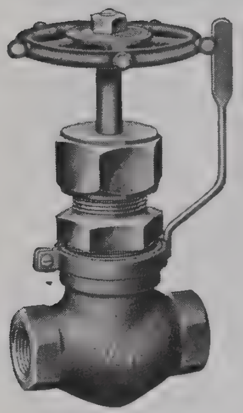
Homestead All Semi-Steel Straightway Valves

For 250 Pounds Working Pressure

Price includes handle.


Screwed

Size In.	No. 22 Screwed Each	End to End In.	No. 23 Flanged Each	Face to Face Flanged Inches	Diam. Flanges Inches
½	$9.35	3⅞	.....	...	...
¾	9.35	3⅞	.....	...	...
1	11.40	4	$18.10	6⅜	4⅞
1¼	13.40	4⅜	21.24	6¾	5¼
1½	14.75	5⅛	23.45	7¼	6⅛
2	18.10	6½	24.10	8¼	6½
2½	26.15	7¼	36.85	9⅜	7½
3	36.85	10⅜	46.90	11⅜	8¼
4	55.65	12½	58.30	12½	10
5	Appl.	14½	Appl.	15½	11
6	Appl.	16¼	Appl.	16¼	12½
8	.....	....	Appl.	18⅝	15
10	.....	....	Appl.	25	17½



Vogt Drop-Forged Steel Ammonia Expansion Valves

Screw Ends—Screw Bonnet—Inside Screw Stem—Integral Seat—Needle Point Stem—Steel Trimmings

Working Pressures to 1500 Pounds With Cold Liquids

Size In.	Globe No.	Globe Each	Angle No.	Angle Each
¼	158	.....	2841	.....
⅜	159	.....	2842	.....
½	160	.....	2843	.....
¾	161	.....	2844	.....
1	162	.....	2845	.....
1¼	163	.....	2846	.....

Walworth Standard Iron Cocks

Square Heads—Nos. 651, 652, 653, and 655
Flat Heads—Nos. 656, 657, 658, and 660

Screwed Ends

125 Pounds Steam Service Rating
125 Pounds Air or Gas Service Rating
150 Pounds Non-Shock Cold Water and Oil Service Rating

Square Head

Size Inches	Nos. 651 and 656 All-Iron Each	Nos. 652 and 657 Galvanized Each	Nos. 653 and 658 Bronze Washer Each	Nos. 655 and 660 Bronze Plug and Washer Each	End to End Inches
½	$3.15	$4.73	$3.53	$4.53	2½
¾	3.66	5.48	4.16	5.42	3¹⁄₁₆
1	4.16	6.30	5.04	6.56	3⅝
1¼	5.42	8.19	6.68	8.82	4¹⁄₁₆
1½	6.68	10.08	8.07	12.60	4⅝
2	8.82	13.86	11.03	17.01	5½
2½	20.16	30.24	30.24	35.28	6⅞
3	32.76	49.14	37.80	54.18	8⅛
4	54.18	79.38	65.50	94.50	10

When used for water or steam, cock should have bronze plugs.

Walworth Bronze Steam Cocks

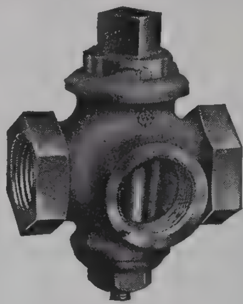
For 125 Pounds Working Steam Pressure

WALWORTH
125
No. 554, Square Head

Size Inches	No. 554 Square Head Each	No. 555 Flat Head Each
¼	$2.42	$2.42
⅜	2.78	2.78
½	3.62	3.62
¾	4.71	4.71
1	6.51	6.51
1¼	8.45	8.45
1½	11.22	11.22
2	18.09	18.09
2½	30.15	30.15
3	48.24	48.24

No. 563 Walworth Standard 3-Way Bronze Steam Cocks with Checks

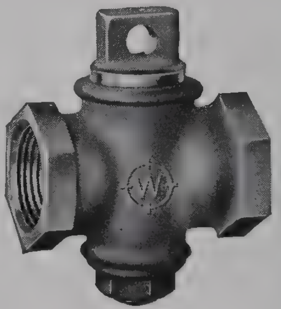
125 Pounds Steam Rating
125 Pounds Non-Shock Cold WOG



Size.......in.	¼	⅜	½	¾	1	1¼	1½	2
No. 563..each	$3.62	4.34	5.67	7.23	9.17	13.26	16.89	26.54

No. 591 Walworth Bronze Gas Cocks

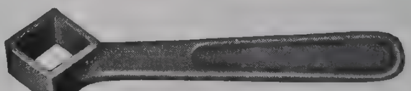
Flat Head



Size.........in.	¼	⅜	½	¾	1	1¼	1½	2
No. 591....each	$2.06	2.30	2.66	3.38	4.34	6.03	8.09	13.26

No. 7904 Walworth Malleable Iron Cock Wrenches

For Gas and Steam Cocks

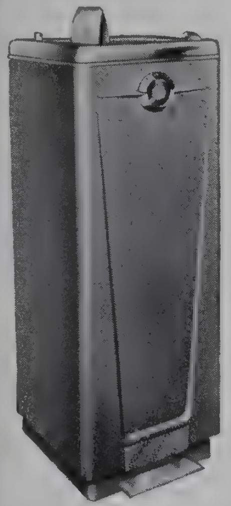


No.	Each	Size Square Opening Inches	No.	Each	Size Square Opening Inches	No.	Each	Size Square Opening Inches
2	$.20	⅜	5½	$.38	¾	8½	$.96	1³⁄₁₆
3	.20	⁷⁄₁₆	6	.41	¾	9	1.14	1¼
3½	.21	½	6½	.48	⅞	10	1.14	1½
4	.23	⁹⁄₁₆	7	.51	1	11	1.94	1¾
4½	.29	⅝	7½	.84	1¹⁄₁₆	12	1.94	2
5	.33	¹¹⁄₁₆	8	.90	1⅛	....	....	...

No. WA13B Westinghouse Electric Water Coolers

Air Cooled—Storage Capacity, 13½ Pints
⅙-Hp. Motor—115 Volts, 60 Cycles or 100 Volts, 50 Cycles
Listed by Underwriters' Laboratories

Made of heavy sheet steel, bonderized. Back and sides one-piece wrap-around construction, front panel removable. Recessed base. Stainless steel top, splashproof design. Connection for glass filler.



Automatic stream control regulator located in bubbler guard. Stream height adjustable.

Finger-tip and toe-tip control. Both operate a common solenoid switch for bubbler actuation.

Compressor-motor-condensor hermetically sealed. Freon 12 refrigerant. Water chamber insulated by granular cork.

Pre-cooler and super sub-cooler assembly utilizes cold waste water to pre-cool incoming water and sub-cool refrigerant.

Ht., 43⅜ in. Wdth., 14$\frac{3}{16}$ in. Dpth., 14⅞ in. Grey baked enamel hammered finish. Shipping weight, 152 pounds.

For 100 v., 50 cy., use 85 per cent of water cap. below.

Adjustable water temp. control. Automatic reset Thermoguard.

Capacity in Gallons per Hour of 50°F. Drinking Water Bubbler Service—60 Per Cent Spill Through Drain

Room	Inlet Water Temperature, °F.				
Temp., °F.	60	70	80	90	100
60	33.8	20.1	14.2	11.4	9.4
70	32.5	19.3	13.7	11.0	9.1
80	30.7	18.3	13.0	10.4	8.5
90	29.8	17.5	12.7	10.0	8.1
100	26.8	15.9	11.3	9.0	7.3

No. F-8355

Neo-Toric Vitreous China Drinking Fountain with spillway at rear of bowl. Supported on concealed wall hangers and wall screws.

Fittings: Guarded angle stream anti-squirt bubbler with self-closing controlling valve, renewable unit, metal 4-arm handle, automatic volume regulator, and metal strainer.

Supply: ⅜-inch I.P. size to wall with loose key stop.

Trap: Brass, 1¼-inch P pattern with I.P.S. outlet.

Exposed Metal: Chromium-plated.

Wall to Front	inches	14½
Width Overall	inches	16
Approximate Shipping Weight	pounds	56

Available with vitreous china bottom condensation plate.

Furnished in white or colors.

Automatic volume controls are tested and regulated at the factory to operate under 10 to 100 pounds pressure. If fountain is to operate at a pressure less than 10 lbs., this should be noted on order. Water should be free from sediment.

No. F-8350-1 Atlantic, with Loose Key Stop

Vitreous China Pedestal Drinking Fountain with bowl and pedestal, integral.

Fittings, angle stream anti-squirt bubbler with self-closing controlling valve, renewable unit, metal 4-arm handle, automatic volume regulator, drain connection with strainer and china strainer cover, floor screws, and washers.

Supply pipe, ⅜-inch I.P. size to floor with loose key stop and metal escutcheon.

Trap, not furnished.

Exposed metal chromium plated.

Diameter of Bowl	inches	13¾
Height, Floor to Rim	inches	30
Approximate Shipping Weight	pounds	97

Provision must be made for installation of trap below floor.

Furnished in white or colors.

No. F-8364-1

Floric Vitreous China Drinking Fountain with round bowl. Supported on wall bracket.

Fittings: Angle stream anti-squirt bubbler, self-closing valve, metal 4-arm handle, metal strainer with tail-piece, and china strainer cover.

Supply Pipe: Not furnished.

Trap: 1¼-inch P pattern, rough, with metal wall flange.

Exposed Metal: Chromium plated.

Outside Diameter Bowl	inches	9¾
Wall to Front of Bowl	inches	13
Approximate Shipping Weight	pounds	24

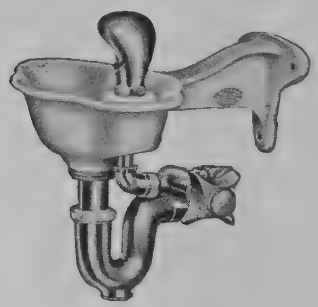
The opening from which the stream flows is above the overflow point of the receptacle and the metal guard is constructed to allow the escape of water should any mischievous attempt be made at squirting.

"Standard" Angle Stream Drinking Fountains have the approved slanting stream. This is also a sanitary safeguard since it assures the water falling clear of the fountain head.

Can be furnished with automatic pressure regulator when specified.

Furnished in white or colors.

No. 4566 Halsey Taylor Cantonment Type Wall Drinking Fountains



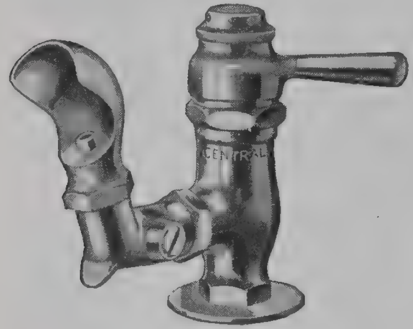
Cantonment type wall fountain with enameled cast iron receptor. Supported on wall screws.

Fittings, 2-stream mound building projector with ⅜-inch self-closing stop, 4-ball metal handle, loose key volume regulator, and brass strainer.

Supply pipe not furnished. Trap, 1¼-inch P pattern. Exposed brass chromium plated.

Receptor	inches	6½x9½
Projection from Wall	inches	11½
Approximate Shipping Weight	pounds	15

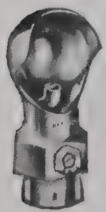
No. 367-SH Paragon Angle Stream Bubblers



Chromium-plated angle stream bubbler with ball bearing valve, volume control, renewable seat, and loose flange.

Size, Female I.P.T.	inches	⅜
No. **367-SH**	each	....
Center Inlet to Center Outlet	inches	3½

No. 658 Angle Stream Nozzles



Chromium-plated angle stream nozzle with volume control adjustment at front.

Female thread for ⅜-inch pipe.

No. **658**	each	.....

No. 6240 Lawson Surface Cabinets

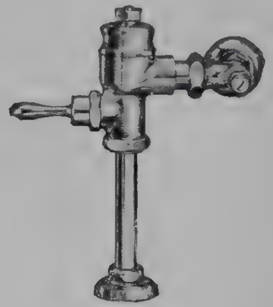
Welded construction; baked enamel finish. Polished, one piece, stainless steel mirror frame, continuous piano type hinge. Bullet-type door catch, two bulb-edge glass shelves.

Stainless swing-away towel bar. Select single-strength mirror. Four recessed door shelves (three 1½-in. deep, one 1-in. deep); two 4½-in. deep cabinet shelves.

Body size, 15½-inch wide, 17½-inch high, 4½-inch deep. Mirror, 14-inch wide, 20-inch high. Overall depth of cabinet, with door closed, 6¼ inches.

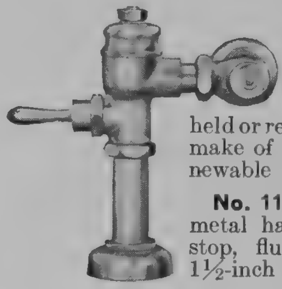
Weight, 16 pounds.

No. 185 Sloan Crown Urinal Flush Valves



Crown urinal flush valve for washout urinals. Chromium plated, with metal oscillating handle, ¾-inch loose key angle stop, flush connection, and coupling for ¾-inch top spud, wall and spud flanges.

Sloan Crown Flush Valves



For every kind of building. Piston type flush valve. Screw adjusts flush to suit any fixture. Delivers uniform flush and refill whether handle is held or released. Operates efficiently on any make of fixture. Relief and main seats renewable without special tools or grinding.

No. 110 Crown, chromium plated, with metal handle, 1-inch wheel handle angle stop, flush connection and coupling for 1½-inch top spud, wall and spud flanges.

No. 100 Crown, chromium plated, inlet at back, handle at left, 1-inch wheel handle straight stop, flush connection and coupling 1½-inch top spud wall and spud flanges.

Solid Olsonite Closet Seats

For Regular Bowls

Open front molded seamless, one-piece solid seat.

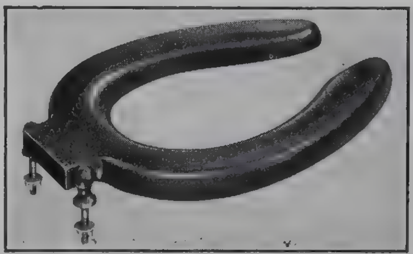
Will not crack, chip, peel, or fade and is impervious to corrosion.

Concealed type hinge.

No. **5**, Black	each	....
No. **5**, White	each	....

Olsonite Closet Seats

For Elongated Bowls



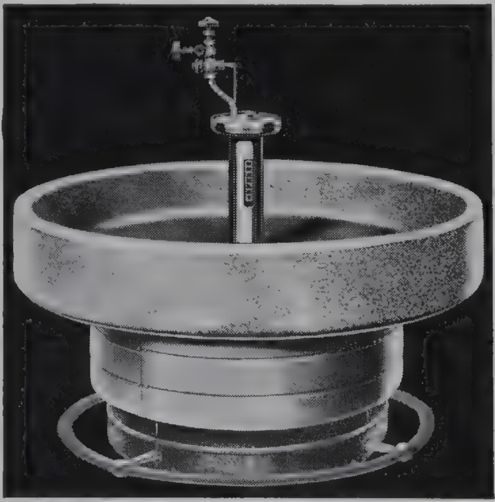
Open front molded seamless, one-piece solid seat.

Will not crack, chip, peel or fade and is impervious to corrosion.

Concealed type hinge.

Available in either white or black.

		White	Black
No. **10**	each	....	....



Type BFA, Foot-Operated, 54-Inch Circular

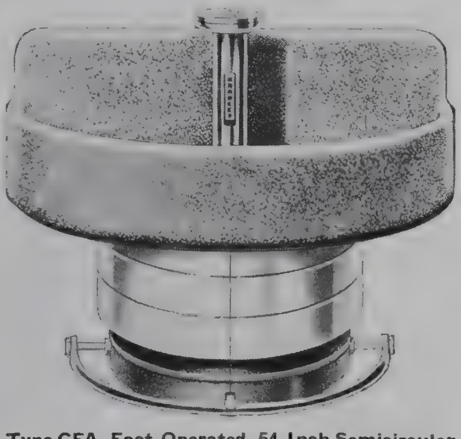
Bradley Washfountain, circular design, with Granito pre-cast stone bowl. Supported on metal pedestal.

Fittings: Sprayhead, exposed manually-operated mixing and volume control valves and foot-operated self-closing valve at top of sprayhead. All exposed fittings brass chrome plated.

Supplies from above; direct rising vent.

Diameter	inches	54	36
No. of Users		8–10	5–6

Type BHA. Same, with hand-operated shut-off valve.



Type CFA, Foot-Operated, 54-Inch Semicircular

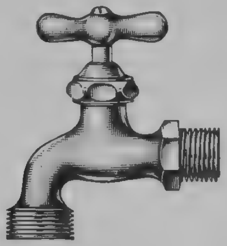
Bradley Washfountain, semicircular design, with Granite pre-cast stone bowl and back integral. Supported on matching pre-cast pedestal.

Fittings: Sprayhead, manually-operated mixing and volume control valves in pedestal, foot-operated shut-off valve. Supplies and vent through wall or floor. All exposed fittings brass, chrome-plated.

Diameter	inches	54	36
No. of Users		5–6	3

Type CHA. Same as above except with hand-operated shut-off valve at top of sprayhead.

Compression Hose Faucets

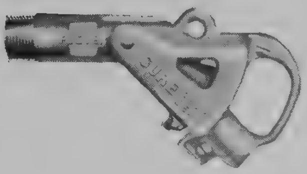


Size	inches	½	¾
Rough	each	....	....
Finished	each	....	....
Chromium Plated	each	....	....

Foster Oil Gates

With Sure-Grip Handle

U.S. Standard Iron Pipe Thread



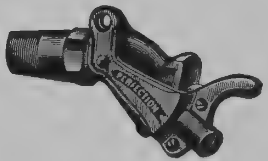
Full flow construction and exclusive handle design for rapid dispensing of heavy oils, paints, waxes, solvents, syrup, cheese, soap, etc. Tamperproof; designed for padlocking.

Aluminum gates are rustproof, sparkproof, light in weight, and may be used with acid materials. Brass or cast iron gates recommended for use with alkali solutions. Cast iron gates are black lacquered.

	No. 700A Aluminum		No. 700B Brass		No. 700C Cast Iron		
Size Inches	Per Dozen	Wt. Lb. per Doz.	Per Dozen	Wt. Lb. per Doz.	Per Dozen	Wt. Lb. per Doz.	No. in Pkg.
¾	$25.53	8	$32.93	16	$24.87	15	6
1	30.00	10	37.00	19	29.25	18	6
1¼	33.85	14	43.89	26	33.10	25	6
1½	35.80	20	47.70	33	35.03	32	3
2	45.60	24	59.30	40	44.60	39	3
3	99.43	42	138.00	108	98.25	102	*
4	229.70	72	323.30	204	228.00	192	*

*Packed in bulk.

Perfection Oil Gates

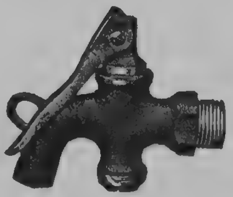


With padlock eyes.
Standard pipe thread.
Prices on application.

No.	71	72	73	74	75
Size ....in.	¾	1	1¼	1½	2
Dia. Padlock Eye ....in	21/64	21/64	23/64	⅜	⅜

No. 3001 Lock Lever Plain Brass Faucets

For Iron Pipe With Shoulder



Rough finish.

Size, In.	Each	Size, In.	Each
½	....	1	....
⅝	....	1¼	....
¾	....	1½	....

MANUFACTURERS' CATALOGS

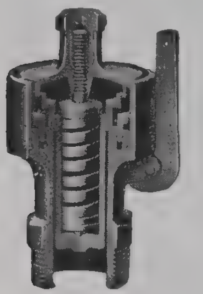
We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

No. 1 Kunkle Pop Safety Valves

All Bronze—Top Outlet

Maximum Set Pressure: No. 1—For Steam, 125 Pounds
No. 1A—For Air or Gas, 250 Pounds

For portable and stationary compressors, boilers, turbines, steam generators, lines, tanks, etc. A.S.M.E. standard for air or steam, and National Board approved.



A compact safety valve with top outlet. Regularly furnished with male pipe thread inlet. Can be furnished with flange inlet, sizes 2½ to 4 inches.

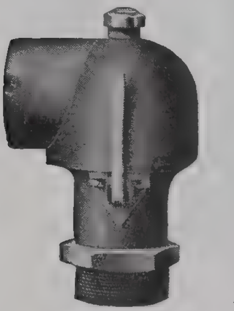
When ordering, specify whether valves are for air or steam service, and pressure at which they should be set.

Size Inches	Each	Size Inches	Each	Size Inches	Each
⅜	$9.32	1¼	$14.00	3	$58.36
½	9.32	1½	17.52	3½	81.60
¾	9.32	2	26.86	4	104.90
1	11.66	2½	40.88	...	......

No. 2 Kunkle Bronze Side Outlet Lock-Up Safety Valves

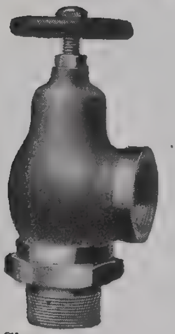
For Steam Pressure Not Exceeding 125 Pounds

A.S.M.E. Standard and National Board Approved. Recommended for portable and stationary boilers and for equipment where it is desirable to discharge away from the pressure vessel or into a drain.



Furnished standard with male pipe thread inlet. Flanged inlet available in sizes 2½ to 4 inches inclusive.

Size In.	Ht. In.	Each	Size In.	Ht. In.	Each
⅜, ½, ¾	3¼	$11.66	2½	8	$46.70
1	4¼	14.00	3	9⅜	65.40
1¼	5⅝	16.34	3½	11	90.90
1½	5⅞	19.84	4	11½	116.60
2	7⅜	31.54	...	....	......



No. 9 Kunkle Bronze Liquid Relief Valves

Semi-Finished

For Set Pressures to 300 Pounds

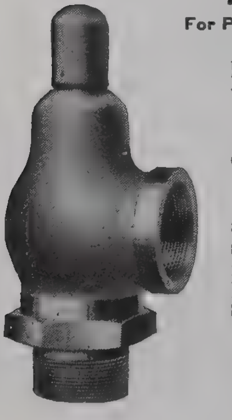
Provides dependable medium capacity liquid relief service for pumps, tanks, lines, etc., handling materials not injurious to brass and/or bronze.

With handwheel; for those installations requiring quick release of valve setting, or frequent changes of set pressure.

Size.................in.	½	¾	1	1¼	1½	2	2½	3
Each.................	$9.32	9.32	11.66	14.00	17.52	26.86	40.88	58.30
I.P.S.:								
Inlet, Male........in.	½	¾	1	1¼	1½	2	2½	3
Out., Female......in.	¾	¾	1	1¼	1½	2	2½	3

No. 10 Kunkle Bronze Liquid Service Relief Valves

For Pressures Up to 500 Lb.



Recommended for intermittent relief of excess pressures, or as a by-pass valve for pressure regulation.

With single disc and side outlet.

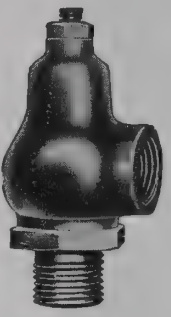
Has a square head regulating screw, covered with a protecting hood.

Pressure-tight on discharge side.

Standard with male thread inlet and female thread outlet. Outlet same size as inlet, except ½-inch size normally furnished with ¾-inch outlet unless otherwise specified.

Size, In.	Each	Size, In.	Each
½	$9.32	1½	$17.52
¾	9.32	2	26.86
1	11.66	2½	40.88
1¼	14.00	3	58.30

No. 11 Kunkle Brass Low Pressure Relief Valves



For Pressure Not Exceeding 100 Pounds

This valve is simply designed, yet sturdy in construction and reliable in service. Used widely on oil and water pumps, lines and systems where working pressures are less than 100 pounds psi.

Made with male inlet only, and female outlet threaded for standard pipe connection.

When ordering, state pressure at which valve is to be set.

Size............................inches	⅜	½	¾
No. 11, Unfinished................each	$3.50	3.50	5.26

No. 12 Kunkle Bronze Safety Valves

For Pressures Not Exceeding 100 Pounds

A.S.M.E. Standard

KUNKLE VALVE
FORT WAYNE IND

A compact top outlet steam safety valve designed for miniature boilers, pressure cookers, vulcanizers, and for sentinel service on small turbines.

Furnished with male pipe thread inlet.

Standard finish is plain bronze, but can be supplied nickel or decorative chrome plated at additional cost.

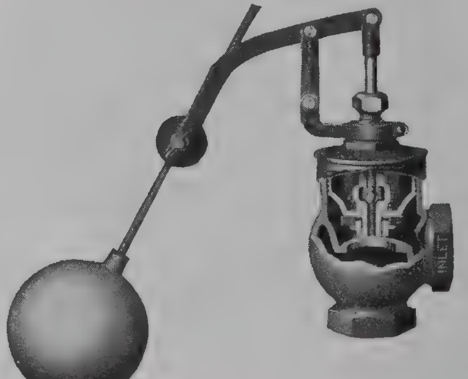
When ordering, state size of inlet (I.P.S.) and pressure at which valve is to be set.

I.P.S. Inlet................inches	⅜	½	¾	1
No. 12.......................each	$7.66	7.66	7.66	8.74

No. 60 Davis Float Valves

Globe and Angle Patterns

For 125 Pounds Working Pressure



Screwed

A tank will never overflow if there is a Davis Float Valve on the makeup line. This valve will automatically maintain a constant water level. When closed, flow is entirely stopped.

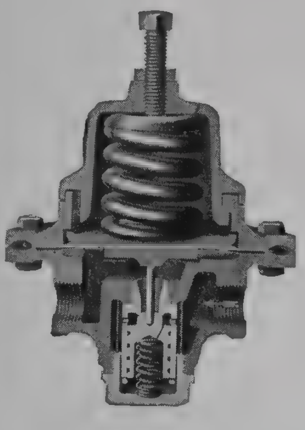
This valve has a single seat with renewable composition disc. It closes tight. Has no leather cup packing.

When valve is seated the inlet pressure which enters on top of disc accumulates in the chamber above the loosely fitted piston. When water level recedes and float drops, it opens the port—the pressure above the piston is relieved and the valve opens. Sizes 3 in. and smaller are brass valves. Larger sizes have semi-steel body with bronze trim.

Size Inches	Screwed Each	Flanged Each	Size Inches	Screwed Each	Flanged Each
½	$40.00	.....	3	$116.00	$123.00
¾	40.00	.....	4	......	175.00
1	41.00	.....	5	......	240.00
1¼	45.00	.....	6	......	260.00
1½	52.00	.....	8	......	465.00
2	65.00	$71.00	10	......	730.00
2½	90.00	97.00	12	......	960.00

No. 13 Davis Automatic Pressure Reducing Valves

Globe—Screwed



For universal use on steam, air and gas pipe lines. Valve affords the means by which automatic pressure reductions may be done simply, efficiently and economically.

Some features of this valve are: Single seat; spring loaded; self-contained; built-in strainer; tight closing disc; high pressure beneath the disc; laminated phosphor bronze diaphragm; spring cap removable by hand; all parts renewable without disturbing pipe connections.

Spring ranges: No. 1, up to 20 lb.; No. 2, 20–50 lb.; No. 3, over 50 lb.

Pressure Limitations

Size.........................inches	⅜–½	¾–1¼	1½–2
Max. Initial Pres.: Iron Body....lb.	250	200	200
Bronze Body..................lb.	300	300	300
Max. Reduced Pressure..........lb.	100	75	50
Min. Reduced Pressure..........lb.	3	2	1

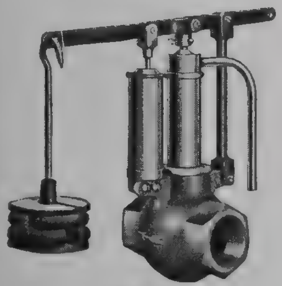
	Semi-Steel Body		Bronze Body		
Size In.	Bronze Trim Each	Monel Trim Each	Bronze Trim Each	Monel Trim Each	Ship. Wt. Lb.
⅜	$28.00	$37.00	$37.00	$47.00	13
½	28.00	37.00	37.00	47.00	14
¾	30.00	40.00	44.00	54.00	18
1	37.00	54.00	54.00	70.00	21
1¼	49.00	65.00	70.00	87.00	23
1½	61.00	80.00	94.00	112.00	56
2	75.00	94.00	122.00	141.00	60

No. 1 Klipfel Reducing Valves

Piston Type

Screwed Ends: For Inlet Pressures to 200 Pounds

Flanged Ends: For Inlet Pressures to 125 or 250 Pounds



Screwed

Will reduce steam from boiler pressure and automatically maintain any desired lower pressure.

Not intended for water or air service.

No. 1 valve in sizes 1½ inch and smaller has bronze body, bronze trim, and integral seat. Sizes 2 inches and larger have semi-steel body with bronze trim.

Available in reduced pressure ranges 10–20, 20–50 and 50–150 psi.

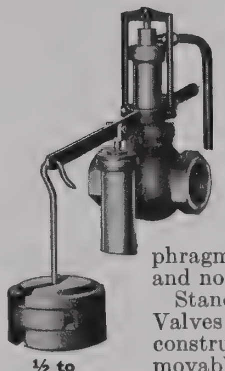
When ordering, give reduced pressure required, also initial steam pressure, valve size, and state whether screwed or flanged ends.

	Screwed		Standard Flanged		Ex. Hvy. Flanged	
Size In.	Each	End to End Inches	Each	Face to Face Inches	Each	Face to Face Inches
½	$49.50	3⅞	......	....	......	....
¾	49.50	3⅞	......	....	......	....
1	55.00	4⅛	......	....	......	....
1¼	60.50	4¼	......	....	......	....
1½	66.00	4⅞	......	....	......	....
2	77.00	6⅞	$82.50	7½	$88.00	8
2½	93.50	8	99.00	9	104.50	9⅝
3	110.00	9⅛	115.50	9¾	121.00	10½
4	......	...	159.50	10⅝	165.00	11¼
5	......	...	192.50	12⅛	203.50	13
6	......	...	247.50	13	258.50	13⅞

No. 2 Davis Pressure Regulators

Counterweighted Piston Type

For 250 Pounds Maximum Initial and 2 Pounds Minimum Service Pressure



½ to 1½-Inch Bronze

Automatically reduces any high initial pressure down to any desired service pressure. Having a balanced inner valve it maintains a constant reduced pressure regardless of high pressure fluctuations. Functions like a lever scale—pressure is balanced by counterweights. To change the delivery pressure simply change the weights.

Has no springs or toggles, no diaphragm, no auxiliary valve, no small parts, and no packing.

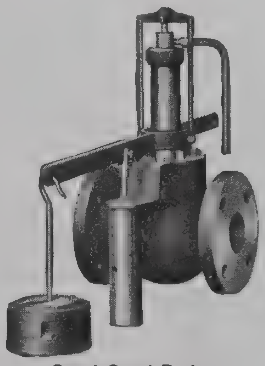
Standard regulators are made for steam. Valves of the same outward appearance are constructed for air and water, but have internal movable parts especially made for the service.

Initial and reduced pressures and volume of steam determine proper size of regulator to be used for a given condition. If pipe sizes have been correctly determined, a regulator of the corresponding size will give good service.

Operating conditions frequently require the use of different pipe sizes for high and reduced pressure. In such instances, it is advantageous to use the No. 3 regulator which has an expanded outlet.

Regulators, 1½-inch and smaller, have bronze bodies with bronze trim; sizes 2 to 12 inches inclusive, have semi-steel bodies and bronze trim.

Steel regulators with monel, stainless steel or other suitable trim are made for pressures up to 600 pounds and 750° F. total temperature. Prices upon request.



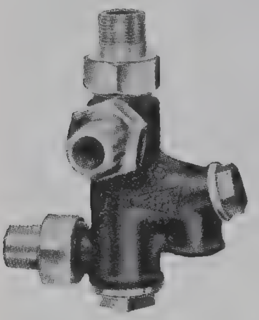
Semi-Steel Body, 2 to 14-Inch Flanged

Size Inches	Screwed Each	Standard Flange Each	Extra Heavy Flange Each
½	$49.00	......	......
¾	49.00	......	......
1	55.00	......	......
1¼	60.00	......	......
1½	66.00	......	......
2	77.00	$83.00	$88.00
2½	94.00	99.00	105.00
3	110.00	116.00	120.00
4	......	160.00	166.00
5	......	194.00	205.00
6	......	250.00	260.00
8	......	383.00	405.00
10	......	690.00	710.00
12	......	890.00	920.00

Increasing to larger pipe size at outlet side of regulator is recommended.

Penberthy Automatic Injectors

A high grade automatic machine. If the current of water is broken by any cause, the injector will pick up the water and re-establish the current to the boiler without the least attention.

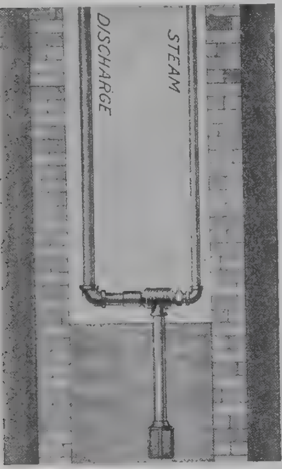


Every machine is carefully tested, and will work on the following points: start low, 20 to 25 pounds steam on 3-foot lift. Work high, 150 to 170 pounds steam on 3-foot lift. Lift water, 20 to 24 feet on 60 to 80 pounds steam. Will deliver water to boiler at 130° to 212° Fahrenheit, according to temperature of feed water and steam pressure. Water 200° to 212° can nearly always be delivered at nearly all pressures over 50 pounds by throttling suction valve and delivering minimum capacity.

It is advisable in many cases to install an injector large enough so that the supply can be cut down and attain this result, thereby saving fuel. By placing a short piece of pipe having a stopcock, in the overflow, and closing after the injector has started, water 8° to 10° hotter can be handled, but the injector is rendered non-automatic while the stopcock is closed.

Size	Each	Horsepower: Based on Ordinary Tubular Boiler	Horsepower: Based on 30 Lb. Water per Hp. per Hour	Pipe Connections Inches	GPH., 1 to 3-Ft. Lift, 60 to 110-Lb. Steam Pressure: Max.	GPH., 1 to 3-Ft. Lift, 60 to 110-Lb. Steam Pressure: Min.
OO	**$16.00**	4 to 8	6 to 12	⅜	80	45
AA	**20.00**	12 to 22	15 to 30	½	180	100
BB	**30.00**	20 to 45	25 to 60	¾	360	180
CC	**45.00**	45 to 80	50 to 100	1	600	325
DD	**60.00**	75 to 135	85 to 165	1¼	1000	525
EE	**90.00**	115 to 255	150 to 320	1½	1900	850
FF	**125.00**	200 to 400	250 to 500	2	3000	1600
GG	**200.00**	375 to 600	400 to 750	2½	4200	2150

Penberthy Ejectors



The jet pump is a simple device which, by virtue of converting the pressure head of operating medium into a high velocity stream, is able to induce fluids, vapors or gases into suction chamber and discharge the mixture against pressure.

When provided with an operating medium under pressure, working under conditions within their operating range, jet pumps will perform a wide variety of pumping operations.

Installation

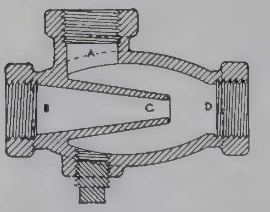
Ejectors operate in any position; should be installed with minimum length of piping, as few elbows, valves, restrictions as possible. When application requires that fluids be lifted by suction, ejector should be located as close to liquid level as practical, with balance of elevation being on discharge side.

Pressure Supply Piping should be adequate to supply the quantity of operating medium to the ejector nozzle without causing a drop in the pressure sufficient to impair the operating efficiency of the ejector.

Suction Piping must be tight to insure maximum capacity, highest possible vacuums. When lifting liquids, suction pipe should be sized so that velocity does not exceed 4 ft. per second. Suction strainers or foot valves, if used, should be size and design to prevent resistance to fluid flow.

Discharge Piping should be full size ejector discharge connection, and if line is long, it should be increased in size so as to keep discharge head to a minimum. On water-operated units required to produce a vacuum at suction, it is necessary to install a check valve in discharge line, change direction of piping, or terminate discharge line below water level so that a seal can be made when starting.

McDaniel Cast Iron Suction Tees



A fitting for improving circulation in steam heating lines, acting as an injector to accelerate weak returns. Can be used for heating water noiselessly. Also used for sterilizer installations.

Can not be used to lift liquids.

A and B—Inlets.

C—Jet orifice.

D—Outlet.

Standard Tees—100 Pounds Pressure

Size....in.	½	¾	1	1¼	1½	2	2½	3
Each....	**$2.50**	**2.50**	**3.25**	**3.75**	**4.50**	**5.75**	**9.00**	**13.00**
Ship. Wt.....lb.	2	4	5	6	7	10	15	24

Extra Heavy Tees—250 Pounds Pressure

Size.......in.	1	1¼	1½	2	2½	3	4	5	6
Each........	**$5.75**	**7.25**	**9.00**	**12.50**	**18.00**	**27.00**	**45.00**	**70.00**	**100.00**
Ship. Wt., lb..	10	12	14	20	26	38	70	100	160

Blakeslee Jet Pumps

DU QUOIN
TRADE MARK

For raising water and other liquids.

Adapted for tanneries, breweries, creameries, railroad water stations, etc.

Tubes removable and interchangeable.

No.	Each	Pipe, Inches: Suction	Pipe, Inches: Discharge	Pipe, Inches: Steam	Cap. GPM.	Wt. Lb.
*S-075	**$10.00**	¾	½	⅜	8	4
*S-100	**13.50**	1	¾	½	15	6
*S-125	**16.50**	1¼	1	½	20	8
†S-150	**18.50**	1½	1¼	¾	30	12
†S-200	**24.00**	2	1½	¾	40	16
†S-250	**35.00**	2½	2	1	50	24
†S-300	**42.50**	3	2½	1	60	33
†S-400	**87.50**	4	3	2	250	60

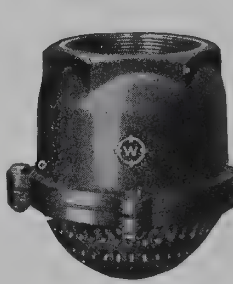
*Iron bodies, iron nipples, and brass nuts, combining and steam tubes.

†Iron bodies, nuts and nipples, and steam and combining tubes of brass.

Also made in all bronze, all iron, and stainless steel, price on application.

Walworth Iron Body Screwed Foot Valves

With Strainer and Leather Faced Disc

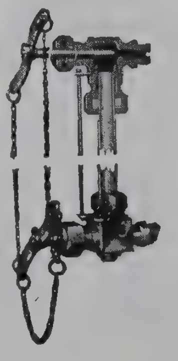


Style ¾ to 6-Inch

Size In.	**No. 2245 Black** Each	**No. 2246 Galv.** Each	Largest O.D. Inches	Total Height Inches
¾	**$2.30**	**$2.50**	3¾	3⅝
1	**2.40**	**2.70**	3¾	3⅝
1¼	**2.70**	**3.00**	4¼	4¼
1½	**3.40**	**3.80**	4¾	4¾
2	**4.60**	**5.10**	5½	5⅝
2½	**6.00**	**6.50**	6⅞	6⅛
3	**8.00**	**8.80**	8¼	7⅜
4	**13.50**	**15.00**	9⅝	9⅞
5	**19.00**	**21.00**	10½	10⅝
6	**24.00**	**27.50**	12½	11⅝
8	**55.00**	**70.00**	15¼	12½
10	**70.00**	**95.00**	19½	19⅜
12	**110.00**	**160.00**	20¼	19½

Wright-Austin Safety Chain Pull Water Gauges

For Pressures up to 300 Pounds per Square Inch



Quick-closing feature adds an important factor of safety for boiler operator. When glass breaks, one pull of chain from floor or platform, shuts off, instantly, both steam and water.

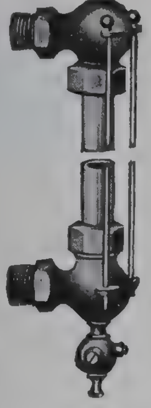
Valves are high grade steam brass and polished all over. The two guard rod holders are part of body casting.

Made for ¾-inch glass. Blowoff tapping, ⅜ inch. Furnished with two guard rods and 4 feet of connecting chain.

In ordering, give no., size, and distance between centers of gauge valve connections. Weight, 5 pounds.

No. **110**, ½-Inch..............each .....
No. **112**, ¾-Inch..............each .....

No. 0000 Essex Expansion Tank Water Gauges



Tested for Pressures to 150 Pounds

This gauge is used in connection with hot water systems. Body is of rough brass.

Threaded for ⅜ and ½-inch iron pipe.

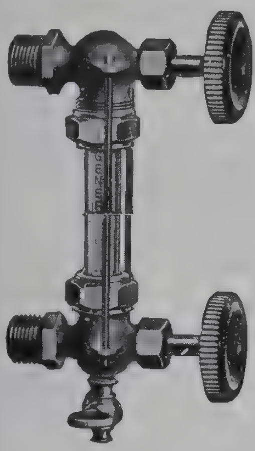
Equipped with dripless air cock.

Drip Cock has T handles.

Glass is protected by two guards. Size, ⅝-inch x 12 inches with ½-inch gauge; ⅝-inch x 10 inches with ⅜ gauge.

Weight, 1¼ pounds.

No. **0000**.......................each .....



Essex Self-Cleaning Water Gauges

With Steel Wheels

Tested for Pressures to 150 Pounds

Rough body. Finished trimmings. With two guards.

Assembled with packed stems ready for use.

No........	000	1	1½
Each......	....	....	....
Size Glass ......in.	⅝x10	⅝x12	¾x16
Pipe Thread ......in.	⅜	½	¾

Sherman Fusible Plugs

Made from high grade brass and filled with pure tin.

In ordering always give number and size.

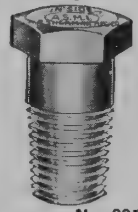
Short Pattern

No. 99 Fireside (Outside)
No. 99A Waterside (Inside)
For Low Pressures Only

H B SHERMAN MFG CO

No. 99F Tube Plugs

For Working Pressures Not Exceeding 225 Pounds

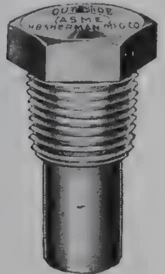


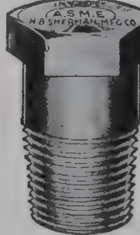
	Nos. 99 and 99A			No. 99F		
Size..............inches	⅜	½	¾	1	⅜	½
Each....................	$.60	.70	.90	1.20	1.00	1.30
Wt. per Doz..........lb.	1¼	2	3¼	5¾	2	3

Long Pattern

Fireside (Outside)
No. 99B—For Working Pressures Not Exceeding 175 Pounds
No. 99D—For Working Pressures Over 175 Pounds and Not Exceeding 225 Pounds

Waterside (Inside)
No. 99C—For Working Pressures Not Exceeding 175 Pounds
No. 99E—For Working Pressures Over 175 Pounds and Not Exceeding 225 Pounds





	Nos. 99B and 99C				Nos. 99D and 99E			
Size......inches	⅜	½	¾	1	⅜	½	¾	1
Each...........	$1.20	1.30	1.65	2.20	....	1.90	2.20	2.75
Wt. per Doz..lb.	2	3½	5½	9	2	3½	5½	9

Pyrex Gauge Glasses

PYREX RED LINE

High visibility.

In the Red Line type, water in the glass magnifies red line into a broad red ribbon.

Water level stands out.

Maximum lengths: Heavy Wall 48 inches, Red Line 72 inches and Pyrex High Pressure 150 inches.

Per Dozen

	Outside Diameter, Inches High Pressure, ⅜ to 1½ Inches Red Line, ½ to 1 Inch	Heavy Wall, ⅝ to 1 Inch					
Lgth. In.	⅜, ½	⅝	¾	⅞	1	1⅛, 1¼	1½
8	$6.10	$7.05	$8.15	$10.00	$13.10	$20.55	$33.00
9	6.65	7.75	8.95	10.90	14.30	22.65	37.10
10	7.30	8.40	9.75	11.90	15.60	24.85	41.25
11	7.85	9.10	10.40	13.00	16.85	26.50	45.30
12	8.50	9.75	11.20	13.80	18.15	28.45	49.50
13	9.10	10.45	12.00	14.80	19.35	30.60	53.65
14	9.75	11.20	12.85	15.85	20.55	32.55	57.75
15	10.20	11.90	13.60	16.85	21.80	34.75	61.80
16	10.90	12.70	15.15	17.95	23.40	37.10	65.95
17	11.55	13.30	15.75	18.85	24.70	39.00	70.05
18	12.20	14.10	16.25	19.95	26.20	41.25	74.15
19	13.00	14.80	17.35	21.10	27.50	43.35	78.35
20	13.55	15.60	18.65	22.25	28.95	45.65	82.50
21	14.20	16.25	19.25	23.00	30.05	47.70	86.70
22	14.75	16.95	19.75	24.20	31.45	49.95	90.75
23	15.50	17.95	21.10	25.20	32.95	52.00	94.80
24	16.20	18.65	22.40	26.60	34.40	54.35	99.00
30	19.90	23.00	26.60	32.65	42.60	67.75	123.70
36	24.30	28.05	32.45	39.90	50.80	82.05	148.50
42	28.80	33.15	39.00	46.95	61.25	97.15	173.25
48	33.45	38.60	45.50	54.55	71.30	113.20	198.00
54	38.60	44.55	51.20	63.00	82.30	130.60	222.65
60	43.90	50.60	58.10	71.40	93.50	148.30	248.00
66	49.15	56.85	65.60	80.45	105.40	167.00	272.90
72	55.00	63.55	72.95	89.80	117.35	186.10	298.00

Intermediate lengths take same price as next longer glass listed. Lengths longer than listed, up to maximum length specified, are priced by multiplying price of 12-inch length by number of feet (fractions of a foot take price of full foot).

Recommended Maximum Working Pressures

Outside Diameter Inches	Max. Working Pressure, Pounds Per Sq. Inch Length, Inches 10	20	30	40	50	60	70
⅜– ¾	500	420	340	290	220	180	140
⅞–1	375	315	300	275	220	180	140
1⅛–1½	200	165	145	135	125	115	105

For Pyrex Red Line Glasses reduce above pressures by 20 per cent.

Standard Packing

Length, Inches	Diam., In.	Pkg.
Up to **36** Inclusive....................	⅞ and less	6
Over **36** up to **72** Inclusive	⅞ and less	3
Over **72**	⅞ and less	1
Up to **36** Inclusive....................	1 and over	3
Over **36**	1 and over	1

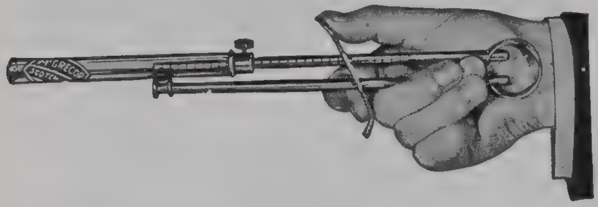
Standard Gauge Glasses

	Per Dozen External Diam., In.				Per Dozen External Diam., In.				Per Dozen External Diam., In.		
Lgth. In.	½	⅝	¾	Lgth. In.	½	⅝	¾	Lgth. In.	½	⅝	¾
8	$3.65	$4.65	$5.45	17	$6.95	$8.80	$10.35	36	$14.65	$18.55	$23.10
9	4.00	5.10	5.95	18	7.35	9.30	10.90	42	17.30	21.80	25.95
10	4.35	5.55	6.45	19	7.70	9.75	11.70	48	20.15	25.50	29.95
11	4.75	6.00	7.00	20	8.05	10.25	12.25	54	23.35	29.60	34.55
12	5.15	6.40	7.55	21	8.45	10.75	12.85	60	26.30	33.30	39.15
13	5.45	6.85	8.05	22	8.85	11.30	13.50	66	29.70	37.60	44.00
14	5.75	7.35	8.60	23	9.25	11.80	14.10	72	33.00	41.90	48.95
15	6.15	7.80	9.10	24	9.65	12.30	14.65	..	.....	.....	.....
16	6.60	8.30	9.75	30	12.00	15.20	18.35	..	.....	.....	.....

Recommended working pressures per square inch: up to 30 inches, 200 pounds; 31–40 inches, 180 pounds; 41–50 inches, 160 pounds; 51–60 inches, 130 pounds; 61–70 inches, 100 pounds.

Intermediate lengths and longer lengths are also available. Prices upon application.

Chesterton Gauge Glass Cutters



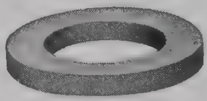
A handy nickel-plated tool with a sliding lever that can be placed close to the work to obtain more power. Steel cutting wheel.

Individually boxed and packed in cartons containing ½ dozen or dozen boxes.

Shipping weight, 7 ounces.

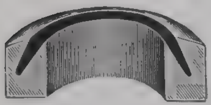
Each	$4.00
Extra Cutter Wheels and Pins....per dozen	4.00

No. 2011 Square Rubber Gauge Glass Washers



Size....inches	½	⅝	¾
No. 2011....per dozen	....	...	...

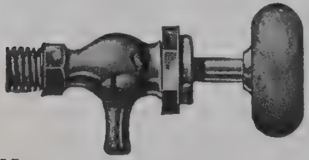
Marvel Gauge Glass Washers



Closed edge of washer always goes into nut first, leaving open edge exposed. Nut is screwed up, thumb and finger tight. Steam, or other pressure, is turned on and immediately washer has expanded inner lip against glass, forming cushion, and outer wall against nut, closing every crevice. Solid section of washer is made thin enough to allow glass to become adjusted to its proper alignment without any danger of breaking.

No.	Per Gross	Size Glass In.	O.D. In.	Outside Depth In.	No.	Per Gross	Size Glass In.	O.D. In.	Outside Depth In.
30	$16.80	3/8	13/16	1/4	47	$28.80	3/4	1 1/16	3/4
1	16.80	1/2	13/16	9/32	24	21.00	3/4	1 3/32	13/32
21	16.80	1/2	7/8	3/8	14	21.00	3/4	1 1/8	3/8
2	21.00	1/2	7/8	1/2	39	24.00	3/4	1 1/8	7/16
29	21.00	1/2	1	5/16	33	24.00	3/4	1 1/8	1/2
28	21.00	1/2	1	3/8	17	28.80	3/4	1 1/8	5/8
34	32.40	1/2	1 7/16	3/8	54	32.40	3/4	1 1/8	7/8
19	16.80	9/16	13/16	9/32	11	21.00	3/4	1 3/16	13/32
12	16.80	9/16	27/32	19/32	22	16.80	3/4	1 1/4	1/4
18	28.80	9/16	1 3/32	1/2	7	21.00	3/4	1 1/4	13/32
3	16.80	5/8	7/8	9/32	53	24.00	3/4	1 1/4	1/2
52	16.80	5/8	7/8	3/8	23	32.40	3/4	1 1/4	3/4
13	16.80	5/8	15/16	9/32	8	24.00	3/4	1 5/16	13/32
9	24.00	5/8	15/16	9/16	16	32.40	3/4	1 5/16	5/8
4	16.80	5/8	1	9/32	41	32.40	3/4	1 3/8	3/8
25	24.00	5/8	1	15/32	32	21.00	3/4	1 3/8	1/4
5	21.00	5/8	1 1/8	3/8	10	32.40	3/4	1 7/16	13/32
37	28.80	5/8	1 1/4	1/2	46	28.80	3/4	1 5/8	1/2
35	24.00	5/8	1 5/16	13/32	45	32.40	3/4	1 15/16	3/8
50	21.00	21/32	1 1/4	1/4	27	24.00	7/8	1 3/8	13/32
20	16.80	11/16	1	9/32	40	32.40	31/32	1 3/4	3/8
51	21.00	11/16	1 1/8	3/8	48	37.20	31/32	1 3/4	7/16
42	24.00	11/16	1 3/16	7/16	26	32.40	1	1 5/8	1/2
44	28.80	11/16	1 3/8	3/8	38	37.20	1	1 1/2	1
31	16.80	3/4	1	3/8	36	37.20	1 1/4	1 7/8	1 5/16
43	28.80	3/4	1	3/4	49	37.20	1 7/8	2 1/4	3/4
6	16.80	3/4	1 1/16	9/32	56	32.40	11/16	1 7/16	13/32
15	24.00	3/4	1 1/16	1/2	55	32.40	7/8	1 31/64	7/8

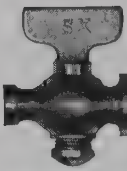
Compression Gauge Cocks with Stuffing Box



For 150 pounds pressure.

No.	5	6	7
I.P.S....inches	⅜	½	¾
Each	$1.60	1.80	2.25

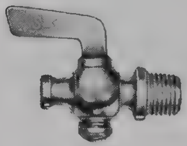
Essex Air Cocks



Tee Handle—Straight Nose

No.	6	7	*8	*9	*63-T	*64-T
Size..in.	⅛	¼	⅜	½	⅛	¼

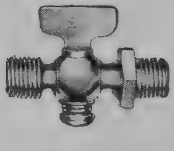
*With hexagon shoulder.



Lever Handle—Straight Nose

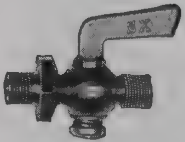
No.	12	13	*14	*15	*63-L	*64-L
Size..in.	⅛	¼	⅜	½	⅛	¼

*With hexagon shoulder.



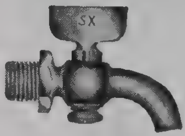
Tee Handle—Double Male
With Hexagon Shoulder

No.	18	19	20	21
Size......in.	⅛	¼	⅜	½



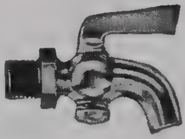
Lever Handle—Double Male
With Hexagon Shoulder

No.	22	23	24	25
Size......in.	⅛	¼	⅜	½



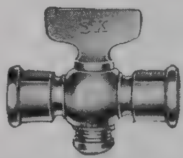
Tee Handle—Bibb Nose
With Hexagon Shoulder

No.	26	27	28	33
Size......in.	⅛	¼	⅜	½



Lever Handle—Bibb Nose
With Hexagon Shoulder

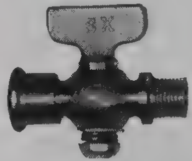
No.	29	30	31	32
Size......in.	⅛	¼	⅜	½



Tee Handle—Double Female

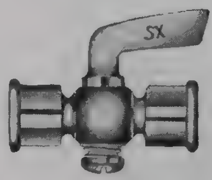
No.	37	38	39	*55	*56	*57
Size......in.	⅛	¼	⅜	⅛	¼	⅜

*With hexagon shoulder.



Tee Handle—Male and Female

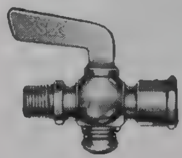
No.	40	41	42	*49	*50	*51
Size......in.	⅛	¼	⅜	⅛	¼	⅜



Lever Handle—Double Female

No.	Size In.	No.	Size In.	No.	Size In.
43	⅛	45-A	½	*60	⅜
44	¼	*58	⅛	*60-A	½
45	⅜	*59	¼	.....	..

*With hexagon shoulder.



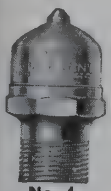
Lever Handle—Male and Female

No.	Size In.	No.	Size In.	No.	Size In.
46	⅛	48-A	½	*54	⅜
47	¼	*52	⅛	*54-A	½
48	⅜	*53	¼	.....	..

*With hexagon shoulder.

TRANE PRODUCTS STOCKED IN SOUTH BEND ONLY

No. 4 Hoffman Quick Vent Air Valves


No. 4

Vents mains of small 1 and 2-pipe gravity steam systems. Not equipped with float. Must be installed where water will not be encountered. Usually 18 inches above boiler water line meets requirements. Non-adjustable port.

Maximum operating pressure, 25 pounds.

Size connection, ¾-in. male; ½-in. female.

No. **4**............................each **$4.81**

No. 4A Hoffman Quick Vent Float Air Valves

No. 4A

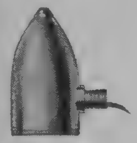
For venting mains of 1 and 2-pipe gravity steam systems, closes when water and steam are encountered. Non-adjustable port.

Maximum operating pressure, 10 pounds.

Size connection, ¾-in. male; ½-in. female.

No. 4A............................each **$3.85**

No. 40 Hoffman Ventor Non-Adjustable Venting Valves



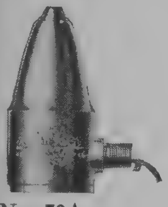
For Venting Radiators or Heating Units of 1 or 2-Pipe Gravity Steam Systems

Single port. Built to exacting standards.

Angle pattern only. Connection, ⅛ inch i.p.s. Maximum operating pressure, 10 psi.

No. **40**, Nickel Plated........each **$1.37**

No. 70A Hoffman Non-Adjustable Air Valves



Size Connection, ⅛ Inch

Maximum Operating Pressure, 10 Pounds

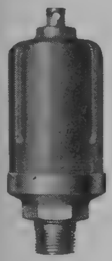
Equipped with new improved hinged tongue. A single port—non-adjustable air valve.

Meets Federal Specifications WW-V-151 for Type 1 non-adjustable valves.

No. **70A**....................................each **$2.61**

No. 74 Hoffman Steam Unit Heater Air Valves

Maximum Operating Pressure, 50 P.S.I.
Maximum Drop-away Pressure, 35 Pounds



Vents air at any time, whether pressure is rising, dropping or holding steady.

Unit heater keeps hot, no cooling off needed to get rid of air. Internal float. Closes against water, prevents spitting.

Capacity, 300 cubic inches per minute at 1-pound pressure, 800 cubic inches per minute at 10 pounds and over.

On usual installations, tee is put in outlet line and vent installed on nipple 12 inches above line.

Length overall, 6 inches. Diameter, 2½ inches. Male thread ¾ inch, female ½-inch.

No. **74**....................................each **$9.49**

No. 75 Hoffman Quick Vent Float Air Valves

For venting mains of 1 and 2-pipe medium steam systems. Large area float member positively closes port when water is encountered. Rugged construction.

No. 75

Non-adjustable vent port. Maximum operating pressure, up to 10 pounds.

Size connection, ¾-inch male, ½-inch female.

No. **75**.......................each **$9.49**

No. 75A Hoffman Quick Vent Float Air Valves

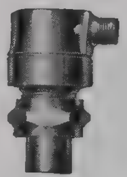
For venting mains of 1 and 2-pipe large steam systems operating at a low pressure. Closes when water is encountered. Non-adjustable vent port.

Maximum operating pressure, 10 pounds.

Size connection, ¾-inch male, ½-inch female.

No. **75A**....................................each **$9.49**

No. 3 Hoffman Air-Line Valves



Used on air-line or Paul systems. The inlet end is equipped with a ⅛-inch standard pipe thread connection nipple for attaching to the radiator.

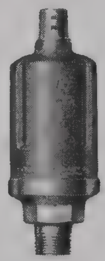
The outlet end consists of a union nut and nipple, the latter being tapped with a standard ¼-inch pipe thread.

No. **3**...........................each **$5.56**

Hoffman Quick Vent Float Air and Vacuum Valves

No. 76

For venting medium size steam mains of 1-pipe vacuum systems.


No. 76

Double air locks. Non-adjustable vent port.

Maximum operating pressure, up to 10 pounds.

Size connection, ¾-in. male, ½-in. female.

No. **76**...........................each **$12.77**

No. 76A

For venting large size steam mains of 1-pipe vacuum systems. Ideal for venting large amounts of air at low pressure.

Double air locks. Non-adjustable vent port.

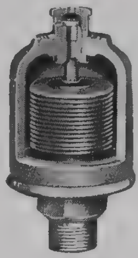
Maximum pressure, 3 pounds.

Size connection, ¾-in. male, ½-in. female.

No. **76A**....................................each **$14.14**

Trane Quick Vent Valves

Maximum Recommended Pressure, 20 Pounds


No. 2

Used for quick air elimination where steam only is encountered.

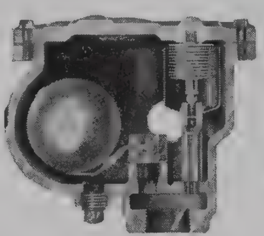
Balanced pressure bellows guards against rupture resulting from excessive pressure differential. Vacuum protector prevents return of air to system.

Has full ¼-inch diameter venting port, extra capacity.

No. 1 has integral seat machined in brass body. No. 2 has cast iron body and removable brass seat.

No.		1	2
Each		....	....
Capacity	square feet	1500	2000
Shipping Weight	pounds	1¼	2½

Trane Float and Thermostat Traps



Used for quick elimination of air and water on steam mains and steam condensing equipment of heavy capacities. Made for high or low pressure service.

The variable lever ratio float mechanism gives extra operating power and extra capacity. Seat high in trap well above dirt.

Bellows are of multiple corrugation type. Unique bellows shield triples sensitivity and guards against water hammer.

Clean-out plug at bottom.

Tapping Size Inches	Series No.	Weight Pounds	Low Pressure		High Pressure	
			Each	*Rating per Hr. Pounds	Each	†Rating per Hr. Pounds
¾	A	5	....	200	....	1160
1	C	12	....	500	....	2350
1¼	C	12	....	1200	....	2940
1½	H	38	....	2400	....	11770
2	H	38	....	5000	....	14730

Low pressure ratings are net capacities in accordance with standards adopted by the Steam Heating Equipment Manufacturers Association, providing for continuous air elimination when the trap is operating at maximum rating.

Ratings of high pressure traps are continuous discharge capacities. When selecting high pressure traps multiply actual condensate by 2 to get minimum trap rating.

*At 2 pounds pressure difference. †At 80 pounds pressure difference.

Control Circuit Information

Series 10—Refers to the control circuit in which two contacts are made in sequence to start and break in reverse sequence. A Series 10 thermostat requires the use of a Series 10 primary control but a Series 10 primary control can be controlled with a Series 80 thermostat. Most Series 10 controls are being discontinued in favor of the Series 80 equivalents.

Series 20—Refers to the control circuit in which one circuit is made when the controller calls for heat and another circuit is made when the controller is satisfied. A Series 20 device does not return to the Off position on power failure. This circuit is particularly adaptable to motor operation. The thermostat and controller wiring is three-wire, low voltage S.P.D.T., but is entirely different from Series 10.

Series 40—Covers devices used in two-wire line voltage circuits, for special applications and for direct control.

Series 50—Refers to devices that are non-electrical.

Series 60—Refers to the control circuit in which one contact is made for starting line voltage controlled equipment and another contact is made for stopping line voltage controlled equipment. In other words, Series 60 is line voltage equivalent to Series 20.

Floating control typifies the circuit wherein a reversing motor will move in the direction determined by the thermostat or controller, as long as the contacts are made, and will be reversed as the contacts in the thermostat are reversed; with a stand-by occurring when both circuits in the thermostat or controller are broken.

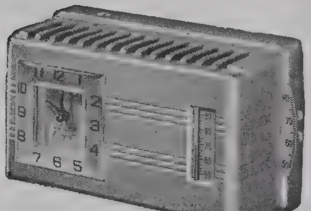
Series 70—Refers to electronic circuit control. This circuit is especially sensitive to minute voltage changes through the controlling resistance coil.

Series 80—Refers to devices having a two-wire low voltage control circuit. In other words, Series 80 is the low voltage equivalent for Series 40.

Series 90—Applies to modulating or proportioning equipment which provides for modulation of the device under control in proportion to the demands of the thermostat or controller. This is accomplished through the use of potentiometer type instruments

Minneapolis-Honeywell Chronotherms

For 115 Volts, 60 Cycles



Fully automatic electric clock thermostat. For use with any oil, gas or stoker control; one heater element for all applications. One model for all original installations.

Electric clock-type thermostats automatically lower room temperature for a desired period at night (minimum six hours) and automatically return to the normal daytime control setting. Temperature settings can be made externally. Differential is adjustable.

The TA247A is designed to give Chronotherm control to Series 20 primaries such as zone dampers and hand fired heating plants.

Silver bronze finish. Special finishes are available at extra cost. Submit sample.

Height, 2⅞ inches; width, 5 inches; depth, 2½ inches.

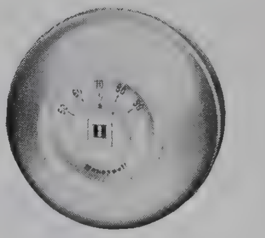
The following special features are available: night shutdown, locking cover and centigrade scale, 10 to 26°C.; special voltages of 115 volts, 25 or 50 cycles; or 230 volts 25, 50 or 60 cycles at $2.70 extra.

When ordering, specify type number, voltage and frequency, type number, voltage and frequency of valve, relay or motor to be controlled and special features required.

Type No.	Each	Series	Switch	Range	No. per Ctn.	Wt. Lb.
TA247A	**$39.50**	20	†3 Wire	50 to 80°F.	10	3
*TM848A	**39.50**	10 or 80	‡3 or 2-Wire	50 to 80°F.	4	3
TM850A	**39.50**	Universal	‡3 or 2-Wire	50 to 80°F.	10	3

*Plug-in model.
†Single pole, double throw.
‡Snap-acting.

No. T26A Minneapolis-Honeywell Round Thermostats



Designed to give accurate and dependable control to Series 20 valves, motors and relays. Temperature selector and thermometer scale are combined in one easy to read dial. A mercury switch assures positive, dust free contact operation for life of thermostat. Has single-pull double-throw switch.

Manual differential, approximately 1½°F.

Electrical rating: low voltage a.c. only; 30 volts maximum. Standard scale range is 55 to 85°F.

Overall dimensions: diameter, 3¼ inches; depth, 1½ inches; diameter of adaptor plate, 5 inches.

Silver bronze finish. Packed 20 units per carton.

Weight, .5 pounds.

Special features available at extra cost: round wall plate for covering an old thermostat mounting; wall plate for mounting to an outlet box.

When ordering, specify No., voltage, frequency of device to be controlled and special features required.

No. T26A, (Series 20)........................each **$15.00**

No. T86A Minneapolis-Honeywell Thermostats

For low voltage (20 to 24 volts), a.c. only. Cannot be used on line voltage.

Electrical rating, 0.8 amperes at 25 volts, a.c.

Two-wire only. Closes circuit on temperature fall. Heat actuated.

Uses a dust-proof mercury switch. Heater is adjustable for currents from 0.35 to 0.8 amperes.

Setting range is from 55° to 85° F. Internal stops can be set to limit either end. Thermometer range is 42° to 98° F. Manual differential, approximately 1½° F.

Thermometer and setting means are combined in one transparent, easy-to-read dial. Cover ring may be removed and painted to suit color scheme of room. Mounted by means of concealed backplate.

Diameter, 3¼ inches. Depth, 1½ inches.

Special features: locking cover; adapter wall plate for covering old thermostat mounting; backplate, screws and adapter bracket for mounting on an outlet box; positive on or positive off; special scale ranges.

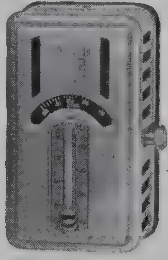
Packed 20 units per carton. Weight, ½ pound.

Specify No. and special features required.

No. T86A.................................each **$13.70**

Minneapolis-Honeywell Heavy Duty Line Voltage Thermostats

Mercury Switch Type



T 42

Series 40, single-pole, single-throw heavy duty line or low voltage thermostat for control of heating or cooling systems. Will handle directly large motor-driven unit heaters, coal blowers, cooling equipment etc. Provided with a bellows and a bellows-actuated mercury switch. On large or polyphase motors, may be used in connection with magnetic starters.

Adjustment by external knob at side of case. Silver bronze finish.

Height, 5$\frac{7}{16}$ in.; width, 3⅜ in.; depth, 2¼ inches.

Centigrade scale equivalent to standard Fahrenheit range, and locking device furnished at no extra cost.

Range, 40 to 80°, 60° to 100°F. Non-adjustable differential, 2 to 3°F. Specify No., range, special features.

Type No.	Each	Action on Circuit, Temp. Fall	RATING AMPERES					
			115 VOLTS			230 VOLTS		
			Current	Running Current	Locked Rotor	Running Current	Locked Rotor	Wt. Lb.
T42A	**$17.80**	Closes	A.C.	7.4	44.4	3.7	22.2	1¼
			D.C.	2.5	25.0	1.3	12.5	1¼
T42B	**17.80**	Opens	A.C., D.C.	2.0	....	1.0	....	1¼

Minneapolis-Honeywell Surface Aquastats

Mercury Switch Type

For riser mounting. Holds temperature of hot water heating system within safe limits. Usable on pipes that are vertical, horizontal or at an angle. Has visible scale, internal wiring conn. and snap-on cover; employs thermostatic bi-metal element. Range: No. LA209, 100-200°F.; No. LA409, 60-200°F. Available in centigrade equivalents at extra cost. Differential is non-adjustable, approximately 10°F.

Electrical rating: No. LA209A, low Voltage; Nos. LA409A and LA409B as follows:

Rating in Amperes

	Running Current		Locked Rotor	
Volts	A.C.	D.C.	A.C.	D.C.
115	7.4	.24	44.4	24.0
230	5.1	1.2	30.6	12.0

Height of case, 4⅜ inches; width, 3 inches; depth, 2⅛ inches. Shipping weight, 1¼ pounds.

No.	Description	Each
LA209A	Stops Burner on Temp. Rise (Series 20)	**$11.10**
LA409A	Opens Circuit on Temp. Rise (Series 40)	**11.10**
*LA409B	Closes Circuit on Temp. Rise (Series 40)	**11.10**

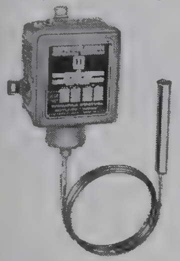
*Also used as unit heater controllers.

Type L626B Minneapolis-Honeywell Temperature Controllers

Mercury Switch Type

Light Duty—Wide Range

Used for control of low and high temperature test cabinets, laboratory boxes and altitude chambers. Contains a mercury switch to provide 2-wire operation of refrigerating machines.



External lugs provide convenient 3-point mounting. Main scale is divided into two parts to obtain its wide range. Has direct reading scale with equivalent centigrade ranges marked on same scale plate. Switch is single-pole, double-throw, making it possible to use the control on either heating or cooling applications or on both.

Differential, 2½° at mid-scale, non-adjustable.

Electrical rating: 1 ampere at 115 volts, ½ ampere at 230 volts, 1/20 horsepower repulsion-induction, 1/20 horsepower single phase or 115 or 230 volts, a.c.

Regularly furnished with 5-foot capillary.

Range	°F.	**−100—+50**	**+40—+210**
Type L626B	each	**$22.35**	**23.75**
Bulb Size	inches	4x½	14x11/16
Weight	pounds	3¼	3¼

Type TM801A Minneapolis-Honeywell Time-O-Stats

A conventional 2-wire room type thermostat with added features of day-night control and a positive shut-off device. Positive shut-off permits absolute shutdown of heating plant at any time. Day-nite feature permits lowered temperature level for a predetermined period, maximum 11 hours, with automatic return to normal control point. Open contact type.

Silver bronze finish.

Scale range: day 60 to 84°F., night 55 to 70°F. Factory set at 1½°F., adjustable differential.

Single pole, single throw switch. Action on temperature fall, closes circuit.

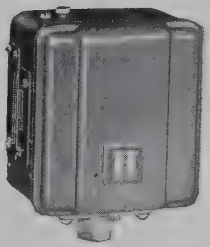
Electrical rating, low voltage a.c. only 1.2 amperes 30 volt maximum.

Height, 4⅜ inches; width, 2¼ inches; depth, 2 inches; weight, ½ pound.

Type TM801A (Series 80) .... each **$28.90**

Minneapolis-Honeywell Pressuretrols

Mercury Switch Type



P Type

Provides high limit protection for steam and vapor systems. Has visible scale, external adjustment means for cut in and cut out pressures, and internal terminal connections. The actuating bellows are within the case.

The range of all P models is 0 to 10 pounds and L models have a range of 0 to 15 pounds, 2 to 50 pounds or 5 to 150 pounds with an additional pressure range of 10 to 300 pounds on Nos. L404B, and L604A, available at extra cost.

Cut-in pressure setting of Nos. L204A, P204A, P404A, and L604A plus the differential setting equals cutout pressure of Nos. L404B and P404B plus the differential setting equals cut-in pressure.

Pipe tapping, ¼-inch pipe threads.

Dimensions: approximate height, 4½ inches for P-types, 3⅞ inches for L types; width, 3½ inches, depth, 2½ inches.

Shipping weight, P models 1¾ pounds; L models 3 pounds.

Rating in Amperes

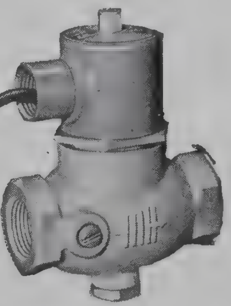
	Nos. P404A, P404B, L404B				No. L604A	
	Running Current		Locked Rotor		Running Current	
Volts	A.C.	D.C.	A.C.	D.C.	A.C.	D.C.
115	7.4	2.4	44.4	24.0	1.0	1.0
230	5.1	1.2	30.6	12.0	.5	.5

All other Nos. are for low voltage a.c. only.

No.	Series	Action on Pressure Rise	Each
P204A	20	Opens Burner Circuit	**$11.30**
P404A	40	Opens Circuit	**11.30**
P404B	40	Closes Circuit	**11.30**
L404B	40	Closes Circuit	**18.70**
L604A	60 20	Closes Stopping Circuit, opens Starting Circuit	**19.70**

Hand knob available instead of screwdriver scale setting.
Kilogram equivalents shown on same scale.
Also used as unit heater controllers.

Minneapolis-Honeywell Solenoid Gas Valves



Designed for use with gas burners where 2-wire line or low voltage control is desired. Suitable for use with natural, manufactured or liquefied petroleum gases.

Valve pattern: straight through, non-offset. Equipped with a positive action plunger which insures positive closing and opening of the valve at the rated pressure.

For 115 volts, 60 cycles except No. VA84A which is for 115 volts, 50–60 cycles. Maximum operating pressure, ½ pound.

Series 40 valves operate on line voltage.

Series 80 valves operate on low voltage and are furnished with a power type, plate mounted transformer.

	Series 40			Series 80			
Size In.	No. VA44A Each	No. VA435A Each	Wt. Lb.	No. VA84A Each	No. VA835A Each	Wt. Lb.	*Flow Cap. at 0.5-In. Press. Drop. CFH.
⅜	.....	**$12.70**	1½	.....	**$15.20**	4	106
½	.....	**13.30**	1½	.....	**15.80**	4	165
¾	.....	**14.90**	1½	.....	**17.40**	4	354
1	**$22.50**	.....	4¾	**$25.00**	.....	7	550
1¼	**29.60**	.....	5	**32.10**	.....	7½	750

*Gas with rating of 500 Btu. per cubic foot, specific gravity, 0.6.

Ashcroft Duragauges

With Phosphor Bronze Bourdon Tube

Grade A phosphor bronze Bourdon tube. Socket and tip of forged brass; designed with drawn, plain brass ends; socket has wrench flats. Brazed joints, stress relieved.

Connections: ¼-inch male N.P.T. is standard up to 1000 psi; ½-inch male N.P.T. supplied on special order.

No.	Size, Inches 4½ Each	6 Each	8½ Each	10 Each	12 Each
1077, **1079**, A, AV, AC, AF	$22.10	$29.70	$46.20	$62.70	$86.90
1179, **1279**, **1377**, A, AV, AC, AF	22.10	29.70	46.20	.....	.....
1378, A, AV, AC, AF	18.40	25.10	.....	.....	.....
1379, A, AV, AC, AF	22.10	29.70	.....	.....	.....
1077, **1079**, AR	26.40	34.50	51.70	68.95	94.80
1179, **1279**, **1377**, AR	26.40	34.50	51.70	.....	.....
1378AR	22.70	29.90	.....	.....	.....
1379AR	26.40	34.50	.....	.....	.....

With Alloy Steel Bourdon Tube

Bourdon tube: S.A.E. 4130X alloy steel in B series; S.A.E. 4650 alloy steel in D series. Alloy steel socket and tip. Socket and tip design: drawn, plain ends in B series; bored, threaded ends in D series; sockets have wrench flats.

Type of joints, welded, stress relieved. Connections: ¼-inch male N.P.T. is standard up to 1000 psi.; ½-inch male N.P.T. supplied on special order; ½-inch male N.P.T. is standard for pressures beginning at 1000 psi.

No.	Size, Inches 4½ Each	6 Each	8½ Each	10 Each	12 Each
1077, **1079**, B, BV, BC, BA	$29.24	$39.68	$57.76	$85.18	$104.54
1179, **1279**, **1377**, B, BV, BC, BA	29.24	39.68	57.76	......	......
1378, B, BV, BC, BA	25.54	35.08	......	......	......
1379, B, BV, BC, BA	29.24	39.68	......	......	......
1077, **1079**, BR	33.80	44.30	62.05	91.40	112.05
1179, **1279**, **1377** BR	33.80	44.30	62.05	......	......
1378BR	30.10	39.70	......	......	......
1379BR	33.80	44.30	......	......	......
1077, **1079**, D to 10000 PSI	36.78	49.38	65.00	109.88	123.90
1077, **1079**, D to 20000 PSI	55.00	63.70	70.00	132.00	143.00
1179, **1279**, **1377**, D to 10000 PSI	36.78	49.38	65.00	......	......
1179, **1279**, **1377**, D to 20000 PSI	55.00	63.70	70.00	......	......
1378, D to 10000 PSI	33.08	44.78	......	......	......
1379, D to 10000 PSI	36.78	49.38	......	......	......
1378, D to 20000 PSI	51.30	69.10	......	......	......
1379, D to 20000 PSI	55.00	73.70	......	......	......

With K Monel Bourdon Tube

K monel Bourdon tube; R monel socket and tip.

Socket and tip design: drawn, plain ends in P series; bored, threaded ends in Q series; sockets have wrench flats.

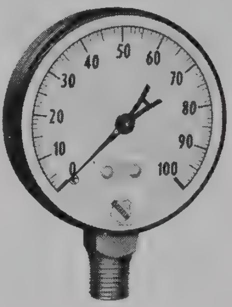
Type of joints, welded, stress relieved. Connections: ¼-inch male N.P.T. is standard up to 1000 psi.; ½-inch male N.P.T. supplied on special order; ½-inch male N.P.T. is standard for pressure beginning at 1000 psi.

No.	Size, Inches 4½ Each	6 Each	8½ Each	10 Each	12 Each
1077, **1079**, P, PV, PC	$44.00	$52.80	$79.20	$99.00	$121.00
1179, **1279**, **1377**, P, PV, PC	44.00	52.80	79.20	......	......
1378, P, PV, PC	40.30	48.20	......	......	......
1379, P, PV, PC	44.00	52.80	......	......	......
1077, **1079**, PR	48.25	58.60	85.00	105.15	127.60
1179, **1279**, **1377**, PR	48.25	58.60	85.00	......	......
1378, PR	44.25	54.00	......	......	......
1379, PR	48.25	58.60	......	......	......
1077, **1079**, Q to 10000 PSI	50.60	63.80	80.00	121.00	137.50
1077, **1079**, Q to 20000 PSI	68.82	79.20	90.00	148.50	165.00
1179, **1279**, **1377**, Q to 10000 PSI	50.60	63.80	80.00	......	......
1179, **1279**, **1377**, Q to 20000 PSI	68.82	79.20	90.00	......	......
1378, Q to 10000 PSI	46.90	59.20	......	......	......
1379, Q to 10000 PSI	50.60	63.80	......	......	......
1378, Q to 20000 PSI	65.12	74.60	......	......	......
1379, Q to 20000 PSI	68.82	79.20	......	......	......

Type 1000 Ashcroft Pressure Gauges

For Use With Air, Water, Steam, Oil or Brine

For use with any liquid or gas not corrosive to brass. Has brass precision movement and drawn steel case with black finish and slip ring. Connection is ⅛ or ¼-inch male N.P.T. from bottom or back of case. The 3½-inch size is made with ¼-inch bottom connection only. Can be supplied with 2 and 2½-inch size tee handle cock at extra charge.



Standard Graduations

Two-inch gauge made only in ranges from 30 to 300 lb., inclusive.

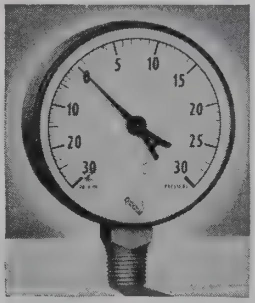
Total Grad. Lb.	Figure Intervals Lb.	Intermediate Grad. Lb.
0– 15	3	½
0– 30	5	1
0– 60	10	1
0–100	10	1
0–160	20	2
0–200	20	5
0–300	25	5
0–400	50	5
0–600	100	10

No.	**2–1000**	**2½–1000**	**3½–1000**
Each	**$2.90**	**3.52**	**4.48**
Size, inches	2	2½	3½
Net Weight, ounces	4	6	9

Back connection on 2 and 2½-inch sizes 48 cents extra.

Type 1004 Ashcroft Compound Pressure and Vacuum Gauges

Made for indicating both pressure and vacuum on one dial. Steel case with black finish and slip ring. The 2½ and 3½-in. sizes have ¼-in. male N.P.T. bottom connection. The 2-in. size has ⅛-in. bottom connection.



Standard Graduations

The 2-inch size made only with graduations of 60 pounds and 30-inch vacuum, 100 pounds and 30-inch vacuum and 150 pounds and 30-inch vacuum.

Total Grad. Lb.	Total Grad. In.	Figure Intervals Lb.	Figure Intervals In.	Intermediate Grad. Lb.	Intermediate Grad. In.
15	30	3	5	½	1
30	30	5	10	1	1
60	30	10	10	1	2
100	30	10	30	1	2
150	30	25	30	5	5

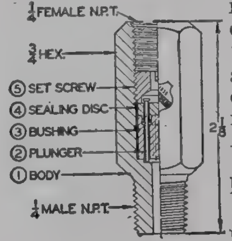
No.	**2–1004**	**2½–1004**	**3½–1004**
Each	**$3.78**	**4.48**	**5.42**
Size, inches	2	2½	3½
Net Weight, ounces	4	6	9

Type 1092 ¼-inch tee handle gauge cocks. Can be furnished at added price, when specified.

Type 1106 Ashcroft Pulsation Dampeners

For Pressures up to 5000 Pounds Per Square Inch

A throttling device recommended for use with pressure gauges which are subject to severe pressure pulsations and rapid fluctuations, such as on reciprocating pumps.



For any pressure medium such as air, water, oil or steam, whenever a dampening device is needed. Eliminates excessive pointer vibration. Helps keep the gauge in calibration.

Can be used either vertically or horizontally.

Adjustable to scope, rapidity of pressure fluctuations and viscosity of pressure medium. Five different size holes are provided, numbered 1 to 5, in the bushing (3). Plunger may be transferred easily from one hole to another, depending upon the degree of dampening required. All holes are sealed off except the one in use, by means of the sealing disc (4). No. 1 hole, having the smallest diameter, and therefore with the least clearance between the plunger and hole, has the most throttling effect. Furnished with plunger in the No. 3 hole.

No. **¼-1106**B, ¼-Inch Size, Brass	each **$5.76**
No. **¼-1106**S, ¼-Inch Size, Stainless Steel	each **10.08**
No. **½-1106**S, ½-Inch Size, Stainless Steel	each **12.24**

Type 1010 Ashcroft Pressure Gauges

For Water, Steam, Air, Brine, Alcohol or Oil

Recommended for working pressures up to and including 600 pounds per square inch, and for standard dial readings from 0–15 pounds up to and including 0–1000 pounds.

Made with phosphor bronze tube, cast bronze socket and ¼-inch male connection from bottom of case. All sizes except 3½-inch made with ¼-inch back connection or for flush mounting, when specified. Add $1.80 for flush mounting on 4½-inch size only.

Alumalife case in 3½, 4½ and 6 inch sizes. Cast iron case in 8½, 10 and 12 inch sizes.

Phosphor bronze patented rotary movement with monel bushings. Dial is white with black figures and markings.

0
10
20
30
40
50
60
70
80
90
100

Standard Graduations

Total Grad. Lb.	Figure Intervals Lb.	Intermediate Grad. Lb.
0– 15	1	¼
0– 30	5	½
0– 60	10	1
0– 100	10	1
0– 160	20	2
0– 200	20	2
0– 300	25	5
0– 400	50	5
0– 600	50	5
0– 800	100	10
0–1000	100	10

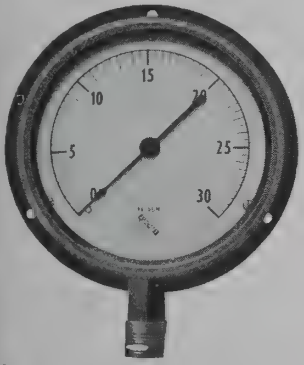
No.	3½–1010	4½–1010	6–1010	8½–1010	10–1010	12–1010
Press. to 600 Lb. each	$10.12	11.58	21.26	31.00	48.00	74.00
Press. over 600 Lb. each	$11.70	13.20	25.16	33.00	53.00	80.00
Size inches	3½	4½	6	8½	10	12
Net Weight lb.	1	2½	4	7½	11	14

No. **1092**, Tee Handle Cock, Extra..............each **$.58**
No. **1095**, Lever Handle Cock, Extra............each **1.60**

For ¼-inch back connection on 4½-inch size add 96 cents. Gauge cocks not furnished with gauges.

Type 1012 Ashcroft Vacuum Gauges

For Water, Steam, Air, Brine, Alcohol or Oil



For indicating straight vacuum in inches of mercury.

Total dial graduations, 0 to 30 inches mercury, figure intervals 5 inches and intermediate graduations at ½ inch.

Made with phosphor bronze tube, cast bronze socket and ¼-inch male connection from bottom of case.

All sizes except 3½-inch made with ¼-inch back connection or for flush mounting, when specified. Add $1.80 for flush mounting, 4½-inch size only.

Black alumalife case with back flange and slip ring in 3½, 4½, and 6-inch sizes.

Cast iron case in 8½, 10, and 12-inch sizes.

Phosphor bronze patented rotary movement with bushings. Dial is white with black figures and markings.

Extra charge for other than standard graduations.

Gauges 6 inches and larger may be fitted with an electric contact for ringing an alarm.

No.	3½–1012	4½–1012	6–1012	8½–1012	10–1012	12–1012
Each	$10.12	11.58	21.26	31.00	48.00	74.00
Size in.	3½	4½	6	8½	10	12
Wt. lb.	1	2½	4	7½	11	14

No. **1092**, Tee Handle Cock, Extra..............each **$.58**
No. **1095**, Lever Handle Cock, Extra............each **1.60**

For ¼-inch back connection on 4½-inch size add 96 cents.

Type 1014 Ashcroft Compound Pressure and Vacuum Gauges

For Water, Steam, Air, Brine, Alcohol or Oil

Used for indicating both pressure and vacuum. Pressures are indicated in pounds per square inch, and vacuum in inches of mercury. Made with phosphor bronze tube, cast bronze socket and ¼-inch male connection from bottom of case. All sizes except 3½-inch made with ¼-inch back connection or for flush mounting, when specified. Add $1.80 for flush mounting, 4½-inch size only.

Black Alumalife case with back flange and slip ring in 3½, 4½ and 6 inch sizes. Cast iron case is 8½, 10 and 12 inch sizes. Phosphor bronze patented rotary movement with bushings. Dial is white with black figures and markings.

0
5
10
15
20
25
30
10
20
30

Standard Graduations

Total Grad. Lb.	Total Grad. In.	Figure Intervals Lb.	Figure Intervals In.	Intermediate Grad. Lb.	Intermediate Grad. In.
15	30	3	5	½	1
30	30	5	10	½	1
60	30	10	10	1	1
100	30	10	10	1	1
150	30	20	10	2	2
200	30	20	30	2	5
300	30	25	30	5	5

No.	3½–1014	4½–1014	6–1014	8½–1014	10–1014	12–1014
Each	$10.92	12.40	26.34	31.00	48.00	74.00
Size inches	3½	4½	6	8½	10	12
Net Weight lb.	1¾	2½	4½	7½	10¼	14

No. **1092**, Tee Handle Cock, Extra..............each **$.58**
No. **1095**, Lever Handle Cock, Extra............each **1.60**

For ¼-inch back connection on 4½-inch size add 96 cents.

Type 1018 Ashcroft Combination Water Pressure and Altitude Gauges

For Water, Steam, Air, Bronze, Alcohol or Oil

Designed to indicate both height of water in feet and corresponding pounds per square inch water pressure. One pound pressure per square inch raises a column of water 27.68 inches or 2.31 feet.

Made with phosphor bronze tube, cast bronze socket and ¼-inch male connection from bottom of case. All sizes except 3½-inch made with ¼-inch back connection or for flush mounting, when specified. Add $1.80 for flush mounting, 4½-inch size only.

Black cast Alumalife case with back flange and slip ring in 3½, 4½, and 6-inch sizes. Cast iron case in 8½, 10, and 12-inch sizes.

0
10
20
30
40
50
60
70
80
90
100

Phosphor bronze patented rotary movement with monel bushings. Dial is white with black figures and markings. Standard with red set pointer. State graduation when ordering.

Standard Graduations

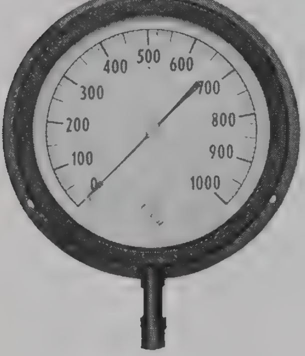
Total Grad. Lb.	Total Grad. Ft.	Figure Intervals Lb.	Figure Intervals Ft.	Intermediate Grad. Lb.	Intermediate Grad. Ft.
15	34	3	5	½	1
30	70	5	10	1	1
60	140	5	20	1	2
100	230	10	20	1	5
160	370	20	50	2	5
200	460	20	50	5	5
300	690	25	50	5	10

No.	3½–1018	4½–1018	6–1018	8½–1018	10–1018	12–1018
Each	$10.38	11.86	26.34	31.00	48.00	74.00
Size in.	3½	4½	6	8½	10	12
Net Wt. lb.	1¾	2½	4½	7½	11	14

No. **1092**, Tee Handle Cock, Extra..............each **$.58**
No. **1095**, Lever Handle Cock, Extra............each **1.60**

For ¼-inch back connection on 4½-inch size add 96 cents.

1056 Ashcroft Hydraulic Pressure Gauges



For liquid or gas not corrosive to steel. For hydraulic presses. Slotted connecting link prevents pointer from slamming back to zero upon sudden releases of pressure. Alloy steel tube, joints screwed and silver brazed. Phosphor bronze rotary movement with bushings. Forged steel socket, ½-in. male N.P.T. bottom connection. Back connection or for flush mounting, available. Black cast iron case with back flange and slip ring.

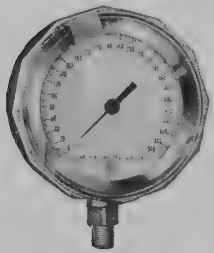
Standard Graduations

Total Grad. Lb.	Figure Intervals Lb.	Intermediate Grad. Lb.	Total Grad. Lb.	Figure Intervals Lb.	Intermediate Grad. Lb.	Total Grad. Lb.	Figure Intervals Lb.	Intermediate Grad. Lb.
0–1000	100	10	0–3000	500	25	0–20000	2000	200
0–1500	200	10	0–5000	500	50	....	....	...
0–2000	200	20	0–10000	1000	100	....	....	...

No.	**4½–1056**	**6–1056**	**8½–1056**	**12–1056**
To 10,000 Lb...each	**$29.50**	**$41.00**	**$82.00**	**$112.00**
To 20,000 Lb...each	**44.25**	**61.50**	**123.00**	**168.00**
Size.........inches	4½	6	8½	12
Net Weight..pounds	4	7½	11	18

Type 1082 Ashcroft Laboratory Test Gauges

A fine laboratory instrument. Accurate to ¼ of 1 per cent. For periodically checking the accuracy of gauges.



Should not be used as a service gauge.

For pressure graduations to 600 pounds inclusive, the Bourdon spring is specially annealed and heat treated phosphor bronze. For pressures over 600 pounds, the Bourdon spring is heat treated beryllium copper which has a minimum of hysteresis effect. The movement is of the patented rotary type with accurately milled teeth, and is mounted independently of the case.

Connection is ¼-inch male N.P.T. from bottom of case. No cock is supplied.

Dial is white. Figure markings and graduation lines are black.

Phenol case is light in weight.

Standard Graduations

Type 1082A			Type 1082H		
Total Grad. Lb.	Figure Intervals Lb.	Intermediate Grad. Lb.	Total Grad. Lb.	Figure Intervals Lb.	Intermediate Grad. Lb.
0– 30	2	.1	0– 800	50	5
0– 60	5	.2	0–1000	50	5
0–100	5	.5	0–1500	100	10
0–160	10	1	0–2000	100	10
0–200	10	1	0–3000	250	10
0–300	25	1	0–5000	200	20
0–400	20	2	0–10000	500	50
0–600	30	2	....	...	..

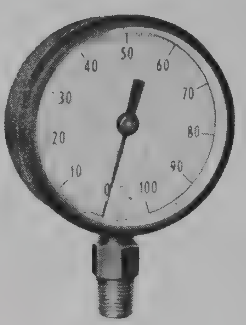
No.	**4½-1082A**	**6-1082A**	**8½-1082A**	**4½-1082H**	**6-1082H**	**8½-1082H**
Each	**$38.00**	**46.00**	**92.00**	**52.00**	**64.00**	**100.00**
Size........in.	4½	6	8½	4½	6	8½
Net Weight.lb.	2	2¾	4½	2	2¾	4½

Steam Gauge Syphons

Connection size, ¼ inch. Length, 8 inches.

Steel.....each	**$.80**
Brass.....each	**1.80**

Type 1084P Ashcroft Pocket Test Gauges



Used either to test other gauges or for use as a very accurate service gauge.

Accuracy is guaranteed to within ½ of 1 per cent of the dial graduation. Dial size, 3 inches.

The bourdon tube is specially heat treated phosphor bronze to insure uniform expansion and the greatest degree of accuracy.

The case is drawn steel. The ring is threaded to the case and will not seize because of the dissimilar metals.

The heavy beveled glass is specially heat treated for strength and toughness. The dial arc is so designed that an anti-parallax effect is produced through the bevel of the glass.

The connection is ¼-inch N.P.T. from the bottom of the case only.

No cock is supplied.

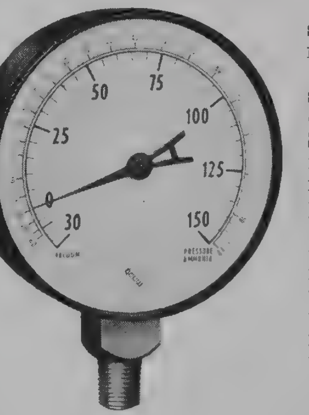
Black oxidized finish case.

Total Graduations Pounds	Figure Intervals Pounds	Intermediate Graduations Pounds	Total Graduations Pounds	Figure Intervals Pounds	Intermediate Graduations Pounds
0– 30	5	¼	0–300	25	1
0– 60	5	½	0–400	20	2
0–100	10	½	0–600	50	5
0–160	20	1	0–800	100	5
0–200	20	1	0–1000	100	5

No.	**3–1084P**
For Pressures to 600 Pounds.....each	**$24.00**
For Pressures over 600 Pounds.....each	**28.00**
Weight.....pounds	1

Ashcroft Drawn Steel Case Ammonia Gauges

No. 1060—150 Lb. and Vacuum, Retarded from 75 Lb.
No. 1061—150 Lb. and Vacuum and 300 Lb. and Vacuum



For indicating both pressure and vacuum in ammonia systems.

Chrome molybdenum steel bourdon tube soldered to socket and tip. Stainless steel geared, corrosion resistant movement, mounted on socket independent of case.

White coated metal lithographed dial with black figures and graduation lines with equivalent temperature of ammonia in red, mounted on socket independent of case.

Needle type pointer. Case drawn steel with friction fit steel ring, both black. Convex crystal.

Lower connection only with ¼-inch male N.P.T. Throttle screw standard. Steel socket with square shank. Steel needle valves recommended; cocks not included.

Accurate within 1 per cent of range for middle third of scale.

Tested under gas pressure to detect leaks.

Also supplied with Phenol case in 3½ inch size.

Standard Graduations

	Total Grad.		Figure Intervals		Intermediate Grad.	
No.	Pounds	Inches	Pounds	Inches	Pounds	Inches
1060	150	30	*150	5	*1	1
1061	150	30	25	30	5	5
1061	300	30	25	30	5	5

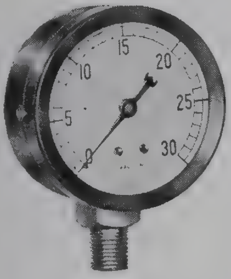
No.	**3½-1060**	**2½-1061**	**3½-1061**
Each	**$21.26**	**16.94**	**19.26**
Size.....inches	3½	2½	3½
Type Crystal	Glass	Plastic	Glass
Net Weight.....ounces	16	9	16

*To 75 pounds.

MARSH GAUGES STOCKED IN SOUTH BEND ONLY

No. 2DP Marsh Standard Vacuum Gauges

Drawn Plain Case—Plain Slip Ring



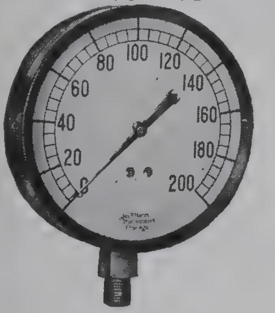
For any source of vacuum which will not deteriorate brass. Standard dial graduation to 30-inch mercury vacuum. Other ranges or combination dials, special. Where instrument is subjected to excessive pulsation or vibration, this gauge should not be installed, but vacuum gauge of heavy construction will be furnished on special order. Black steel case; without cock. For back connection, add 52 cents.

Dial Size....inches	2	2½	3½	4½
No. 2DP, Black Ring....each	$2.90	$3.40	$4.45	$5.50
No. 2DP, N.P. Ring.....each	3.40	3.90	5.20	6.25
No. 2DP, C.P. Ring.....each	3.65	4.20	5.50	6.50
Male Btm. Conn.......inches	⅛, ¼	⅛, ¼	¼	¼

No. 1DP Marsh Standard Single Spring Pressure Gauges

Drawn Plain Case—Plain Slip Ring

For steam, water, air, gas or any pressure medium which will not deteriorate brass. Dial sizes 2 and 2½ inches available with ⅛ or ¼-inch N.P.T. male bottom connection; 3½ and 4½-inch dial sizes have ¼-inch connection only. Black steel case.

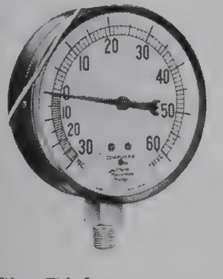


Ranges: 0 to 15, 0 to 30, 0 to 60, 0 to 100, 0 to 160, 0 to 200, 0 to 300, 0 to 400, 0 to 600, 0 to 800 and 0 to 1000 pounds.

Size Dia. In.	Black Ring Each	Nickeled Plated Ring Each	Chrome Plated Ring Each	Wt. Lb.
2	$2.90	$3.40	$3.65	1.0
2½	3.40	3.90	4.20	1.0
3½	4.45	5.20	5.50	1.5
4½	5.50	6.25	6.50	1.5

No. 3DP Marsh Standard Compound Pressure and Vacuum Gauges

Drawn Plain Case—Plain Slip Ring



For indication of both pressure and vacuum on same instrument where pressure medium will not deteriorate brass. Furnished standard with dial graduated 15, 30, 60, 100, 150, 200, or 300 lb. press. and 30-in. vacuum. Black steel case, plain black ring. Without cock. Install syphons under all gauges on steam service. Black steel case.

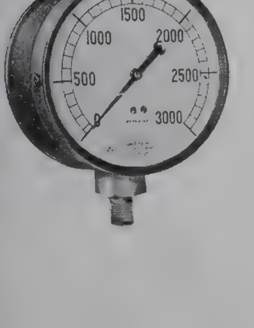
Sizes 2 and 2½ with ⅛-inch N.P.T. male bottom connection; 3½ and 4½-in. sizes, ¼-in. connection only.

Size Dial....inches	2	2½	3½	4½
No. 3DP, with Black Ring...each	$3.65	$4.20	$5.20	$6.25
No. 3DP, with N-P Ring.....each	4.20	4.70	6.00	7.05
No. 3DP, with C-P Ring.....each	4.45	4.95	6.25	7.30

No. 9CP Marsh Hydraulic Gauges

Cast Plain Case—Plain Slip Ring

For use on high pressure equipment such as hydraulic presses, hydraulic production equipment, etc. The 4½-inch gauge can be made for 15,000 and 20,000 pounds and the 6-inch gauge can be made for 25,000 and 30,000 pounds, at extra charge. Black iron case. No cock is furnished.

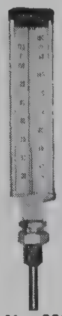


Size Dial In.	Black Steel Ring Each	Nickel Plated Ring Each	Chrome Plated Ring Each	Gauge Graduated for Max. Pressures Up to Pounds	Wt. Lb.
3½	$26.65	$27.45	$27.70	10,000	3¾
4½	34.65	35.45	35.70	10,000	4¾
6	48.65	49.70	51.90	10,000	7

Prices shown apply to gauges with ½-inch N.P.T. male bottom or back connection. Recalibrator for the 3½ and 4½ inch size, $1.04; 6-inch size, $1.30 extra.

Maximum hand at $3.90 extra.

American Industrial Glass Thermometers



No. 203

For service in closed tanks and pipes under pressure.

For temperatures up to 750°F., red reading mercury tubes are used; *over 750° and up to 950° F., white backed borosilicate; hand calibrated, annealed and seasoned. Aluminum scale with black etched figures. Brass case with baked-on gun-metal finish.

Standard Fahrenheit Ranges, Degrees

-40–100 30–240 100–550 200–950
0–100 30–300 150–750 450–950
30–180 50–400 400–850 200–1100

Standard Centigrade Ranges, Degrees

-40–50 0–110 0–200 100–400
0–80 0–150 50–300 100–510

No. 206

No. 203 Straight Type

With Fixed Connection

Stem Lgth. In.	Pipe Thrds. In.	7-Inch Scale No.	7-Inch Scale Each	9-Inch Scale No.	9-Inch Scale Each
3½	¾	7-203F	$22.90	9-203F	$26.00
6	¾	7-203MF-S 6	26.00	9-203MF-S 6	29.10
12	1	7-203MF-S12	29.10	9-203MF-S12	32.20
18	1	7-203MF-S18	31.90	9-203MF-S18	35.00
24	1	7-203MF-S24	34.70	9-203MF-S24	37.80
30	1	7-203MF-S30	37.50	9-203MF-S30	40.60
36	1	7-203MF-S36	40.30	9-203MF-S36	43.40
With Union Connection—Without Extension Neck					
3½	¾	7-203U	$27.90	9-203U	$31.00
6	¾	7-203MU-S 6	31.00	9-203MU-S 6	34.10
12	1	7-203MU-S12	34.10	9-203MU-S12	37.20
18	1	7-203MU-S18	36.90	9-203MU-S18	40.00
24	1	7-203MU-S24	39.70	9-203MU-S24	42.80
30	1	7-203MU-S30	42.50	9-203MU-S30	45.60
36	1	7-203MU-S36	45.30	9-203MU-S36	48.40
With Union Connection—With 2½-Inch Extension Neck					
3½	¾	7-203K	$34.80	9-203K	$37.90
6	¾	7-203MK-S 6	37.90	9-203MK-S 6	41.00
12	1	7-203MK-S12	40.70	9-203MK-S12	43.80
18	1	7-203MK-S18	43.50	9-203MK-S18	46.60
24	1	7-203MK-S24	46.30	9-203MK-S24	49.40
30	1	7-203MK-S30	49.10	9-203MK-S30	52.20
36	1	7-203MK-S36	51.90	9-203MK-S36	55.00

No. 206 90° Back Angle Type

With Fixed Connection

Stem Lgth. In.	Pipe Thrds. In.	7-Inch Scale No.	7-Inch Scale Each	9-Inch Scale No.	9-Inch Scale Each
3½	¾	7-206F	$25.00	9-206F	$28.10
6	¾	7-206MF-S 6	28.10	9-206MF-S 6	31.20
12	1	7-206MF-S12	31.20	9-206MF-S12	34.30
18	1	7-206MF-S18	34.00	9-206MF-S18	37.10
24	1	7-206MF-S24	36.80	9-206MF-S24	39.90
30	1	7-206MF-S30	39.60	9-206MF-S30	42.70
36	1	7-206MF-S36	42.40	9-206MF-S36	45.50
With Union Connection—Without Extension Neck					
3½	¾	7-206U	$30.00	9-206U	$33.10
6	¾	7-206MU-S 6	33.10	9-206MU-S 6	36.20
12	1	7-206MU-S12	36.20	9-206MU-S12	39.30
18	1	7-206MU-S18	39.00	9-206MU-S18	42.10
24	1	7-206MU-S24	41.80	9-206MU-S24	44.90
30	1	7-206MU-S30	44.60	9-206MU-S30	47.70
36	1	7-206MU-S36	47.40	9-206MU-S36	50.50
With Union Connection—With 2½-Inch Extension Neck					
3½	¾	7-206K	$36.90	9-206K	$40.00
6	¾	7-206MK-S 6	40.00	9-206MK-S 6	43.10
12	1	7-206MK-S12	42.80	9-206MK-S12	45.90
18	1	7-206MK-S18	45.60	9-206MK-S18	48.70
24	1	7-206MK-S24	48.40	9-206MK-S24	51.50
30	1	7-206MK-S30	51.20	9-206MK-S30	54.30
36	1	7-206MK-S36	54.00	9-206MK-S36	57.10

For stem length longer than 36 inches for each 6 inches or fraction add $2.80. For extension neck longer than 2½ inches and up to 6 inches add $4.20.

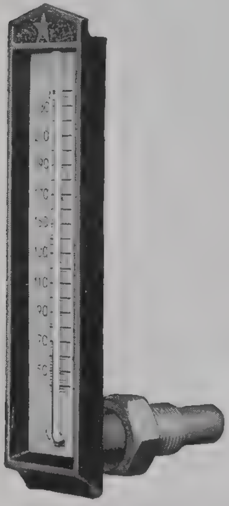
*For temperature ranges over 750°F. add $14. Over 950° add $26.

Also available in 12 inch scale size. When ordering prefix to Catalog number should be 12 instead of 7 or 9. Add $5.00 to price of 9 inch scale thermometers.

American House Heater Thermometers

For Steam and Hot Water

This thermometer is for installation on low temperature steam and hot water boilers.



Type 280 Angle Form

Case is of cast iron, with black japanned finish.

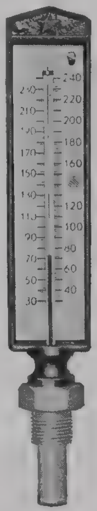
Scales are white and the figures are black. The special magnifying tube enables convenient reading.

Furnished with red reading spirit or mercury column.

Scale is 6 inches and is graduated either 40° to 240° F. or 0° to 100° C. only. Variations are unavoidable and may start below and go over scale.

Length of stem is 2 inches including thread.

Connection is ½-inch N.P.T.



Type 278 Straight Form

Type **278**, Straight Form........................each **$3.20**

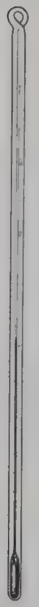
Type **280**, Angle Form..........................each **3.60**

American Test Thermometers

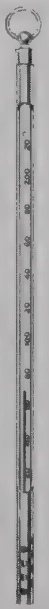
Type 292

A mercury filled thermometer for general test and laboratory work.

Made of thoroughly seasoned thermometer glass, hand calibrated and with deeply etched figures and graduating lines. Calibrated for total immersion up to reading point. Red reading mercury tubing is furnished up to 750°F.



Type 292



Type 293

Type 293

Same as Type 292, except protected against damage by metal sheath.

Fahrenheit Graduations

Lgth. In.	Standard Graduations	Type 292 No.	Type 292 Each	Type 293 No.	Type 293 Each
12	-20 to 120°	12-292AR	$6.00	12-293AR	$10.00
12	0 to 150°	12-292BR	6.00	12-293BR	10.00
12	0 to 220°	12-292CR	6.00	12-293CR	10.00
12	30 to 300°	12-292DR	6.00	12-293DR	10.00
14	30 to 400°	14-292ER	7.00	14-293ER	11.50
16	30 to 600°	16-292FR	8.00	16-293FR	14.00
16	30 to 750°	16-292GR	8.00	16-293GR	14.00
16	100 to 950°	16-292H	20.00	16-293H	25.00

Centigrade Graduations

Lgth. In.	Standard Graduations	Type 292 No.	Type 292 Each	Type 293 No.	Type 293 Each
12	-10 to 110°	12-292IR	$6.00	12-293IR	$10.00
12	0 to 150°	12-292JR	6.00	12-293JR	10.00
14	0 to 200°	14-292KR	7.00	14-293KR	11.50
16	0 to 300°	16-292LR	8.00	16-293LR	14.00
16	0 to 400°	16-292MR	8.00	16-293MR	14.00
16	50 to 510°	16-292N	20.00	16-293N	25.00

American Recording Thermometers

Single Pen

For ranges —60 to 1000°F. or corresponding degrees Centrigrade. Has a 10-inch diameter chart with 3⅝-inch effective scale width.

When ordering, specify wall or flush mounting.

Mercury Actuated. A highly sensitive instrument for use where operating conditions are most severe. Furnished with 5 feet of stainless steel Magic Pulse, self-compensating capillary without armor.

Vapor Pressure Actuated. Recommended for use where long tubing lengths are required and where the operating temperature is near top range. Furnished with 5 feet of copper capillary with bronze interlocking spiral armor.

Gas Actuated. Furnished with 5 feet of copper capillary with bronze interlocking spiral armor.

Type of Bulb No.	Mercury Actuated No.	Mercury Actuated Each	Vapor Pressure Actuated No.	Vapor Pressure Actuated Each	Gas Actuated No.	Gas Actuated Each
40	3340BM	$194.80	3340CW	$178.80	3340DG	$189.80
41	3341BM	199.60	....	......	....	......
42	3342BM	199.80	3342CW	183.80	3342DG	194.80
*43	3343BM	203.60	3343CW	187.60	3343DG	198.60
44	....	......	3344CW	185.80	3344DG	196.80
46	3346BM	194.80	3346CW	178.80	3346DG	189.80
47	3347BM	199.80	3347CW	183.80	3347DG	194.80
*49	3349BM	203.60	3349CW	187.60	3349DG	198.60
*70	3370BM	210.60	3370CW	194.60	3370DG	205.60
*71	3371BM	210.60	3371CW	194.60	3371DG	205.60

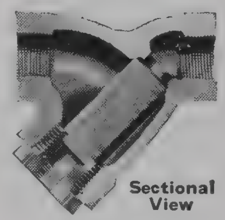
*Standard extension neck is 2½ inches long.

For range over 800°F. and up to 1000°F., add $18.00.

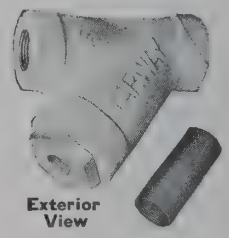
For bulb over 11 inches long, add $4.50 for each additional 6 inches or fraction. For rectangular case, add $16.50.

Yarway Strainers

Screwed Ends



Sectional View



Exterior View

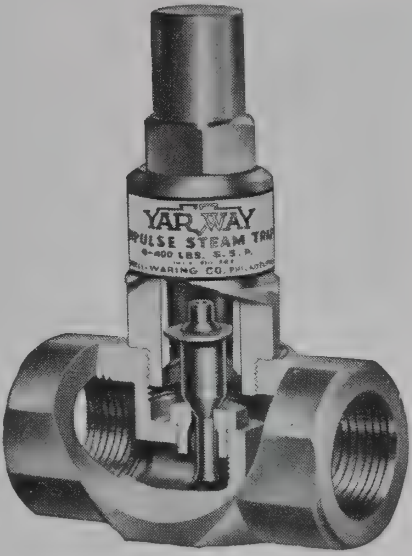
Prevents dirt, chips, scale, welding dross and packing shreds from entering working parts of steam traps, valves, etc. Readily installed in any pipe line, horizontal or vertical. **Screen of high grade monel woven wire.** Fitted with screen caps (straight threads, machined faces, spark-plug type gaskets) except 2½ and 3-in., which have 4-bolt covers. No. 801, iron, for pressures to 250 lb. and temperatures to 410°F. No. 811, bronze, for 300 lb. and to 425°F. No. 821, steel, for 600 lb. and 750°F.

Pipe Conn. In.	No. 801 Each	No. 801 Wt. Lb.	No. 811 Ea.	No. 811 Wt. Lb.	No. 821 Ea.	No. 821 Wt. Lb.	End to End In.	Blow-off Conn. In.
¼	$3.85	1¾	...	2	...	2	3⅛	⅜
⅜	3.85	1¾	...	2	...	2	3⅛	⅜
½	3.85	2¼	...	2¾	...	2½	3¾	⅜
¾	4.30	3½	...	4	...	3¾	4⅜	⅜
1	5.15	5	...	6	...	5¾	5	½
1¼	7.50	8	...	9½	...	8½	5⅝	½
1½	9.60	11	...	13½	...	12½	6¼	¾
2	14.40	18¼	...	22	...	19¼	7½	¾
2½	.....	40	...	....	...	50	9	1
3	.....	48	...	....	...	65	10	1¼

Cast steel, flanged, available.

Yarway Impulse Steam Traps

No. 60 Series—For Pressures Up to 400 Pounds—Maximum Allowable Temperature 450°F.
No. 120 Series—For Pressures Up to 600 Pounds—Maximum Allowable Temperature 750°F.



Construction

The Yarway Steam Trap is unique in that there is only one moving part. This trap is made of bar-stock—no castings are used in its construction.

Bonnet of No. 60 Series is cold-rolled steel, cadmium-plated. Body, valve, control cylinder and seat are stainless steel; valve and seat heat-treated. Cap is of hex tobin bronze.

No. 120 Series traps are stainless steel throughout.

Installation

A few typical Yarway trap suggestions are given below. The general ideas outlined can be applied to practically any kind of equipment requiring draining.

The trap should be installed in a horizontal position with bonnet at top. Place it where it will be easily accessible for inspection.

It is well to locate the valves so that trap can be cut off, if necessary, without interrupting other plant service. By-passes are not necessary.

It is always good practice to install a strainer having basket perforations not larger than 1-64 in. diameter ahead of every trap. Before starting trap, blow piping and strainer out thoroughly.

The discharge port in a Yarway trap is very short, so if discharging to atmosphere, run a length of pipe from discharge end to reduce noise and flash steam.

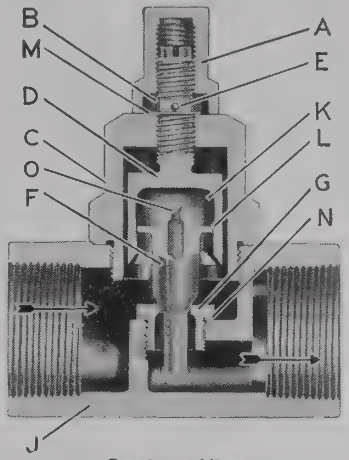
The Yarway Steam Trap will not air bind. No priming is required. Will not lose prime by sudden pressure reduction. These traps are factory-set to operate at all pressures.

Operation

Opening and closing of free, unbalanced valve F—only moving part—is governed by changes in pressure in control chamber K above valve piston L.

Cool condensate discharging freely from control chamber into outlet end of trap through small orifice in center of valve, causes reduction of pressure in control chamber and the valve lifts, permitting air and condensate to discharge through main seat.

Hot condensate vaporizes in control chamber due to reduced pressure and the expansion of this vapor increases chamber pressure, closing valve and stopping flow through main seat. For normal condensate loads, valve opens and closes at short intervals; for heavy loads, valve opens wide and discharge is heavy and continuous. The valve actually floats on the load.



Sectional View

A—Cap Nut
B—Lock Nut
C—Bonnet
D—Control Cylinder
E—Lock Pin
F—Valve
G—Valve Seat
J—Body
K—Control Chamber
L—Control Disc
M—Adjusting Washer
N—Seat Gasket
O—Controlorifice

No. 60 Series-For Pressures Up to 400 Pounds

No.	Trap Complete Each	Body Each	Bonnet and Cap Each	*Valve Assembly Each	Size In.	Lgth. In.	Wt. Lb.
60	**$15.00**	**$3.60**	**$3.20**	**$8.20**	½	2⅝	1¼
61	**22.00**	**4.80**	**4.40**	**12.80**	¾	3	2
63	**31.00**	**9.40**	**5.20**	**16.40**	1	3⅜	2½
64	**48.00**	**19.60**	**7.00**	**21.40**	1¼	3¾	4
66	**68.00**	**33.20**	**8.80**	**26.00**	1½	4¼	5¾
67	**90.00**	**45.00**	**12.40**	**32.60**	2	4¾	8½

No. 120 Series-For Pressures Up to 600 Pounds

No.	Trap Complete Each	Body Each	Bonnet and Cap Each	*Valve Assembly Each	Size In.	Lgth. In.	Wt. Lb.
120	**$25.00**	**$5.70**	**$5.25**	**$8.20**	½	2⅝	1¼
121	**37.00**	**7.60**	**7.00**	**12.80**	¾	3	2
123	**52.00**	**14.90**	**8.20**	**16.40**	1	3⅜	2½
124	**80.00**	**31.05**	**11.10**	**21.40**	1¼	3¾	4
126	**114.00**	**53.00**	**13.90**	**26.00**	1½	4¼	5¾
127	**150.00**	**71.50**	**19.60**	**32.60**	2	4¾	8½

*Should be ordered as .complete set, including control cylinder with lock nut, washer, valve and seat with gasket.

Capacities

Maximum Continuous Discharge of Condensate in Pounds per Hour

Pressure Pounds	Nos. **60** and **120** ½-Inch	Nos. **61** and **121** ¾-Inch	Nos. **63** and **123** 1-Inch	Nos. **64** and **124** 1¼-Inch	Nos. **66** and **126** 1½-Inch	Nos. **67** and **127** 2-Inch
10	475	825	1360	1910	2400	3425
20	650	1150	1725	2315	3050	4340
30	800	1375	1985	2650	3525	5050
40	900	1575	2220	2950	3950	5615
50	980	1725	2425	3200	4315	6100
60	1050	1850	2600	3425	4630	6525
70	1140	1975	2775	3660	4940	6930
80	1200	2080	2925	3875	5200	7260
90	1240	2175	3075	4075	5440	7600
100	1290	2260	3215	4280	5675	7875
125	1400	2460	3550	4760	6165	8530
150	1490	2640	3870	5175	6630	9075
‡200	1630	2900	4380	5960	7410	9950

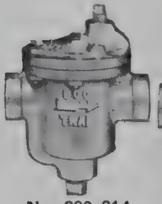
‡While the capacities of Yarway Traps on still higher pressures are greater than those shown in this tabulation, it is recommended that the capacity figures indicated for 200 pounds pressure be used in figuring requirements for all pressures above 200 pounds.

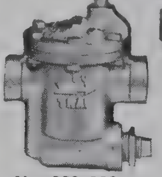
Where greater capacity at low pressure is required, use two or more traps with check valve on discharge end of each trap. Where there are several places to be drained, each having a small amount of condensation, and locations are close together, these points may be connected into one pipe line using one ½ inch trap, placing gate and check valve at each drain point. Yarway traps will operate against normal back pressure in return systems.

Armstrong Inverted Bucket Steam Traps

Free-Floating Lever Type

For Medium Pressures


No. 800-814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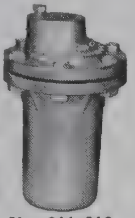

No. 211-216

Semi-steel body; stainless steel wearing parts. Test outlet over discharge orifice. Standard trap will pass any ordinary quantity of air. Blast trap quickly vents large volume of air. With trap cold, bucket is down and both discharge valve and thermic vent wide open. Air passes through without restriction. Heat of entering steam bends thermic strip, closing vent; steam then displaces water from bucket, thereby floating bucket and closing discharge valve. Fitted with different valves for different pressures. Specify maximum pressure at which trap will operate.

Selecting Correct Size of Trap

Capacities shown in table are actual continuous discharge capacities when handling condensate at steam temperatures. Trap that discharges continuously is too small for job, and hence, it is necessary to apply safety factor when selecting steam traps in order to insure intermittent operation and extra capacity for peak loads. For most installations safety factor of 2 to 1 is adequate; that is, if normal load of condensate at given pressure is 1000 pounds per hour, continuous discharge capacity of trap at this pressure should be 2000 pounds per hour.

Where heating is intermittent, as in greenhouses, and large amounts of air must be removed quickly, traps with thermic vents are recommended. For continuous removal of large amounts of air, specify the equipment to be drained, such as jacketed kettles, and traps with specially-sized enlarged bucket vents will be furnished.

Specifications

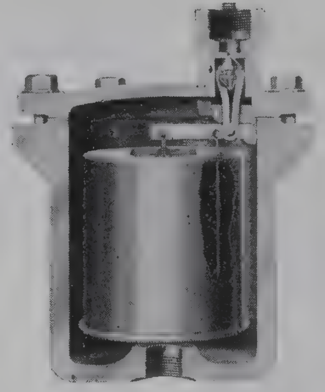
With Integral Strainers

Trap Size No.	Std. Type Each	Blast Type Each	Std. Pipe Conn. In.	Ht. In.	Diam. In.	Max. Press. Lb.	Wt. Lb.
880	**$11.50**	**$13.50**	½, ¾	5⅞	3¾	150	5½
881	**16.00**	**18.00**	½, ¾	7 1/16	3¾	250	6
882	**25.50**	**28.50**	½, ¾	9½	5⅝	250	16
			With Side Inlet				
800	**$10.00**	**$12.00**	½, ¾	5⅜	3¾	150	5
***801**	**10.00**	**12.00**	½, ¾	6	3¾	150	5
811	**14.00**	**16.00**	½, ¾	6⅞	3¾	250	6
812	**23.00**	**26.00**	½, ¾	8 11/16	5⅝	250	15
813	**31.00**	**34.00**	¾, 1	11¾	7	250	27
814	**46.00**	**49.50**	1, 1¼	13⅝	8	250	45
			With Bottom Inlet				
211	**$13.00**	**$15.00**	½	6⅜	4¼	250	6
212	**21.00**	**24.00**	½, ¾	8	5¼	250	12
213	**29.00**	**32.00**	½, ¾	10¾	6⅜	250	21
214	**41.00**	**44.50**	1	12½	7½	250	35
215	**55.00**	**60.00**	1, 1½	14 5/16	8½	250	47
216	**78.00**	**85.00**	1½, 2	17	10 3/16	250	78

Continuous Discharge Capacity in Pounds of Water per Hour at Pressures Indicated

Press. Lb.	Nos. 800-801-880	Nos. 211-811-881	Nos. 212-812 882	Nos. 213-813	No. 214-814	No. 215	No. 216
5	450	830	1600	2900	4800	7600	14500
10	560	950	1900	3500	5800	9000	17300
15	640	1060	2100	3900	6500	10000	19200
20	690	880	1800	3500	6000	8500	18500
25	460	950	1900	3800	6500	9200	20000
30	500	1000	2050	4000	6800	9800	18000
40	550	770	1700	3800	5800	8300	20000
50	580	840	1900	4100	6300	9000	18200
60	635	900	2000	4400	6800	9500	19800
70	660	950	2200	3800	6000	9200	18300
80	690	800	1650	4000	6400	9700	19000
90	620	830	1730	3400	5900	10000	17500
100	640	860	1800	3600	6200	10400	18000
125	680	950	2000	3900	6700	10900	20000
150	570	810	1500	3500	5700	9500	18500
200	...	860	1600	3200	5300	9200	17500
250	...	760	1300	3500	5700	7000	19000

*Furnished with side inlet, bottom outlet.



K-Master Modernized Steam Traps

Entire valve assembly is external, making it readily inspected and serviced, if necessary, without removing the cover. No gaskets or pins, no threads to cross or strip. Valve and seat are of hardened stainless steel, and are reversible. All moving contacts are stainless steel. Equipped with self-cleaning vent.

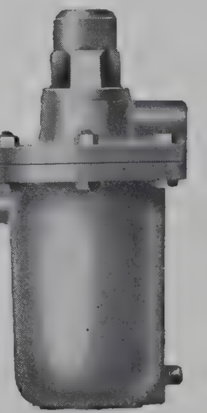
Standard traps for pressures to 200 psi.; heavy series to 300 psi.; steel series to 600 psi. w.s.p.

No.	Standard Each	Thermo-Float Each	Diam. Flange In.	Approx. Ht. In.	Pipe Size In.	Ship. Wt. Lb.
B-00	**$12.50**	**$14.10**	4 9/16	6½	½–¾	8
B-0	**17.50**	**19.10**	5 5/16	6⅝	½–¾	11
B-1	**23.00**	**24.60**	6¼	8⅝	½–¾	16
B-2	**28.75**	**30.35**	7⅞	10	¾–1	28
B-3	**40.00**	**42.85**	8⅝	11¼	1	35
B-4	**47.50**	**51.00**	9⅞	12⅝	1¼	52
B-5	**70.00**	**74.10**	11¾	15⅝	1½–2	94

Capacity in Pounds of Water per Hour

Differential Pressure Lb.	No. B-00	B-0	B-1	B-2	B-3	B-4	B-5
10	820	1460	1850	3260	5860	11090	20700
20	1110	1110	2010	4030	6100	13070	24650
25	900	1230	2220	4180	6280	14130	26180
50	760	1240	1700	4054	6200	12210	26050
75	910	910	1500	4170	6140	11090	23770
100	728	728	1420	3714	5500	9130	16460
125	630	830	1540	3754	4780	7310	14200
150	475	700	1260	3578	4800	6030	10760
175	...	500	1180	2890	3900	6510	11510
200	...	...	1050	3229	4300	5450	8830

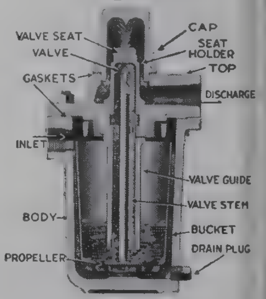
Trerice Steam Traps



Used on steam separators, drip pockets, pipe coils, unit heaters, radiators, kilns, etc., for any pressure steam, superheated, etc.; on air lines, air tanks, separators, etc., for removing condensation from the air; for discharging oil in oil separators.

In changing a Trerice Trap from high to low pressure it is only necessary to change the valve seat.

The valve will turn and seat in a different place after each discharge. When closing it will turn on the seat and form a clean seating surface.



Any size can be carried in a pipe line making it unnecessary to build shelves or supports to carry the trap. Valve and seat are of high chrome steel.

It is self cleaning, the propeller on bottom of bucket keeps sediment stirred until it passes out.

When ordering state pressure at which trap operates.

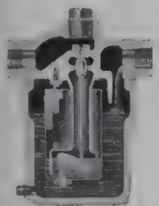
No.	0X	1X	2	3	4
Each	**$16.80**	**27.00**	**34.50**	**63.90**	**92.40**
Inlet and Outlet .... in.	½	½–¾	½–¾	1–1¼	1½–2
Height .... in.	6½	9¾	12⅝	15⅞	18½
Diameter .... in.	4¼	5⅝	6½	8⅝	9⅝
Cap. per Hr. .... lb.	850	1790	2937	9523	13464
Cap. per Hr. .... gal.	102	215	353	1143	1616
Cap. Rad. .... sq. ft.	2550	5370	8811	28569	40392
Max. Oper. Press. .... lb.	125	200	250	250	250
Weight .... lb.	6	17	25	58	84

Capacities based on low pressure.

Wright-Austin Airxpel Vertical Bucket Steam Traps

Cub Series

0-130 and 0-250 PSIG.



Recommended for individual trapping of steam heated units in food processing, laundry, space heating and similar fields. Does not operate on fixed cycle, drains condensate only as received. Sudden surges or flooding, cause trap valve to remain open until reduced flow again permits normal operation.

Automatic discharge of both air and condensate; eliminates air pockets, cold spots and sluggish operation.

Straight-in-line connections; easily installed.

Water seal is entirely within the trap.

Valves and seats are standardized and interchangeable in all Cub type traps.

Semi-steel body; stainless steel bucket. Chrome stainless steel valve and seat. Lever assembly in Cub Jr. is stainless steel; in Nos. 50, 51, 52, 53, valve bronze.

No.	Cub Jr.	**50**	**51**	**52**	**53**
Pipe Size....inches	½, ¾	½, ¾	¾, 1	1	1–1½
Inlet to Outlet, Overall....in.	4¾	6	5⅞	6⅞	7⅝
Center, Inlet and Outlet to Bottom....inches	4⅜	6	6⅛	7¾	10⅞
Height....inches	5¼	7⅜	7 9/16	8¾	12¼
Blow-Off Connection....inches	⅛	¼	¼	½	½
Weight....pounds	5	13	14	24	46

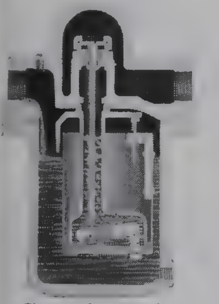
Capacity, Pounds of Water Discharged per Hour at Differential Pressure

	Pressure, PSI.									
No.	**5**	**10**	**20**	**50**	**80**	**100**	**125**	**150**	**200**	**250**
Jr.	860	845	860	450	395	285	320	....	....	....
50	2450	2400	2100	1050	1025	630	700	530	400	443
51	2450	3360	2740	1840	1300	1140	1250	760	610	675
52	4500	6190	4650	2500	1650	1850	1600	1360	875	972
53	4500	6190	8600	10000	6600	5800	6400	5500	4850	2862

Wright-Austin Airxpel Vertical Bucket Steam Traps

Master Series

0-300 PSIG.



Extensively used in manufacturing plants for drainage of larger steam heated process equipment and pipe line drip service.

Spiral vanes in valve holder causes valve to rotate and reseat itself during each discharge of condensate; dislodges dirt particles, results in even wear and tight seal.

Automatic discharge of both air and condensate; perfect water seal.

Corrosion-resistant stainless steel valve and seat; reversible interchangeable in the three sizes.

Semi-steel body; stainless steel bucket. Operating mechanism of valve bronze. Inspection of parts easily made by unbolting and dropping body without disturbing pipe connections. Blow-off connection, ½ inch N.P.T.

When ordering specify Size No., pipe size required, maximum working pressure under which to operate.

Size No.	**61**	**63**	**65**
Pipe Size, Inlet and Outlet....	½—¾	1—1¼	1½—2
Inlet to Outlet, Overall....in.	6½	7⅝	9⅜
Center Inlet and Outlet to Bottom....inches	8⅞	11¼	13⅜
Height....inches	12½	15¼	19
Weight....pounds	28	49	95

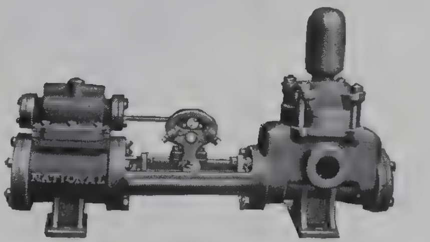
Capacity, Pounds of Water Discharged per Hour at Differential Pressure

Size	Pressure, PSI.										
No.	**5**	**10**	**20**	**50**	**80**	**100**	**125**	**150**	**200**	**250**	**300**
61	7000	7870	8600	4300	4150	2560	2850	2245	2000	2236	2060
63	9800	13440	13400	10000	6600	5800	5000	5500	4850	3996	3100
65	30000	31680	26000	21000	21000	18200	15500	12200	8000	8964	7600

National Simplex Boiler Feed Pumps

Submerged Piston Type—Piston Packed Hood and Plate Pattern

200 Pounds Maximum Pressure



Pumps with 7-inch steam cylinder and smaller have one-piece stainless steel piston rods. Pumps with 8-inch steam cylinder and larger have two-piece piston rods, steel in steam end and stainless steel in liquid end.

Bronze liners, bronze valves, seats, stems and springs, cast iron liquid pistons for square hydraulic packing. Rubber valves will be furnished if specified.

Diam. Steam Cylinder.....in.	5	6	7	8
Diam. Liquid Cylinder....in.	3	4	4½	5¼
Length Stroke.....in.	10	10	10	10
*Capacity Recom. Speed. gpm.	12	21	27	37
Boiler Hp. Pump Will Feed at Recom. Speed.....	150	270	350	480
Diameter Pipe Openings:				
Steam.....inches	½	¾	¾	1
Exhaust.....inches	¾	1	1	1½
Suction.....inches	2	3	3	4
Discharge.....inches	1½	2½	2½	3
Approx. Floor Space.......in.	50x10	58x12	58x12	64x13
Approx. Ship. Wt..........lb.	370	550	700	850

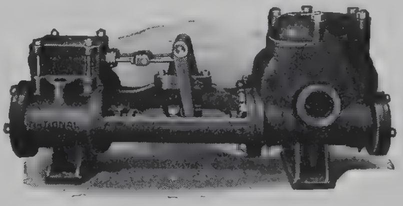
*No allowance made for piston rod displacement or slippage.

Pumps with larger capacities also available; information and prices on request.

National Duplex Boiler Feed Pumps

Submerged Piston Type—Piston Packed Hood and Plate Pattern

Max. Cyl. Press.: 200 Lb. Unit Steam; 250 Lb. Unit Liquid



Has bronze liners, bronze valves, seats, stems and springs, cast iron liquid pistons for square hydraulic packing.

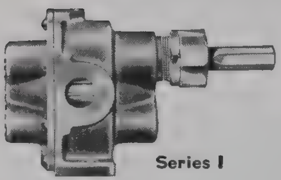
With Side Suction and End Discharge, Tapped Pipe Connections and Bronze Tubular Liners

Diam. Steam Cyl. In.	Diam. Liquid Cyl. In.	Lgth. Stroke In.	Rating Gal. per Stroke	*Cap. GPM., at Recommended Speed	Diam. of Pipe Openings, In. Steam	Exhaust	Suction	Discharge
6	4	6	.326	34	1	1½	3	2
With End Suction and End Discharge, Flanged Pipe Connections on Liquid End and Cast Phosphor Bronze Liners								
7	4½	8	.55	49	1½	2	4	3
7	5	8	.68	61	1½	2	4	3
8	5¼	10	.937	84	1½	2	4	3
9	6	12	1.46	116	1½	2	5	4
9	7	12	1.99	159	1½	2	6	5
10	6	10	1.22	109	2	2½	5	4
10	6	12	1.46	114	2	2½	5	4
10	7	12	1.99	155	2	2½	6	5
10	10	12	4.08	318	2	2½	6	5
12	8	12	2.61	203	2½	3	6	5
14	8	12	2.61	203	2½	3	6	5
12	9	12	3.30	257	2½	3	6	5
12	10	12	4.08	318	2½	3	6	5
14	9	12	3.30	257	2½	3	6	5
14	10	12	4.08	318	2½	3	6	5

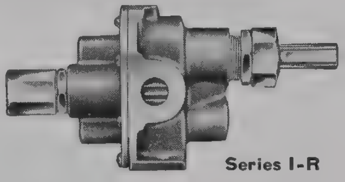
*No allowance made for piston rod displacement or slippage.

Oberdorfer Bronze Rotary Gear Pumps

International Series I and I-R



Series I



Series I-R

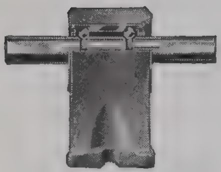
Designed and machined for heavy duty, continuous, positive displacement service. Corrosion-resistant bronze housing and gears; micro-finished stainless steel shafts; oilless carbon bearings. Close tolerances result in long life and reduce liquid transfer costs in most applications.

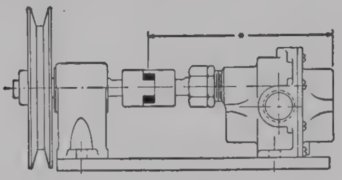
Series I, without relief valve; Series I-R with relief valve to handle complete capacity of pump should outlet pipe be shut off, with pressures controlled from 0-100 psi.

Series I Without Relief Valve No.	Series I Without Relief Valve Each	Series I-R With Relief Valve No.	Series I-R With Relief Valve Each	Gear Size No.	Approximate Dimensions—Inches Height Overall	Base to C/L Shaft	Width	Length
1000	$17.32	1000R	$20.25	1½	2⅞	1⅞	2½	5 9/16
2000	18.97	2000R	22.82	2	3 9/16	2 23/64	3½	5 9/16
3000	24.20	3000R	29.70	3	4	2⅝	3¾	5 15/16
4000	26.95	4000R	32.45	4	4	2⅝	3¾	6 11/16
7000	34.37	7000R	42.62	7	5¼	3 9/16	4¼	6⅞
9000	36.02	9000R	44.27	9	5¼	3 9/16	4¼	7⅛

Series P Pedestal Mount

Ball Bearing



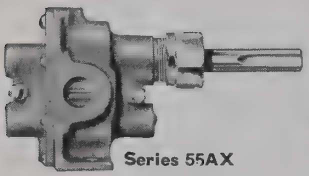


*For pump dimensions, see individual pump tables

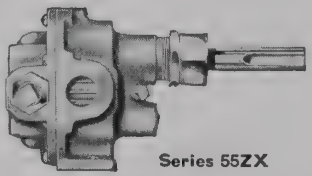
Recommended for pulley drives for Series I, I-R, 55 and 55Z pumps. Pulley drive reduces pump operating speed and increases pump life. One-half shaft speed doubles pump life and reduces hp. requirement. Slower pump speeds reduce noise level.

No.	Each	For Gear Size No.	Approximate Dimensions—Inches Height, Base to C/L Shaft	Width	Length
P-1	$9.90	1½	1⅞	3¾	5 1/32
P-2	9.90	2	2 23/64	3¾	5 1/32
P-3	11.00	3 & 4	2⅝	3¾	5 1/32
P-7	11.55	7 & 9	3 9/16	4¼	5 1/32

Standard Series 55 and 55Z



Series 55AX



Series 55ZX

For intermittent, positive displacement service.

Series 55, without bypass valve; Series 55Z with bypass valve. Corrosion-resistant bronze housing and gears; piston-finished stainless steel shafts, grease fittings for periodic lubrication. Close tolerances for long life and low liquid transfer costs.

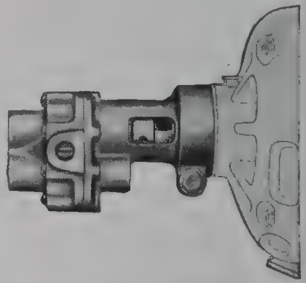
Series 55AX Without Bypass Valve No.	Series 55AX Without Bypass Valve Each	Series 55ZX With Bypass Valve No.	Series 55ZX With Bypass Valve Each	Gear Size No.	Approximate Dimensions—Inches Height Overall	Base to C/L Shaft	Width	Length
1½AX	$13.75	1½ZX	$20.62	1½	2 27/32	1⅞	2¼	6¼
2 AX	15.95	2 ZX	21.17	2	3 9/16	2 23/64	2⅞	6 9/16
3 AX	18.70	3 ZX	24.75	3	4	2⅝	3½	7 1/16
4 AX	20.62	4 ZX	26.67	4	4	2⅝	3½	7 7/16
7 AX	27.22	7 ZX	33.55	7	5¼	3 9/16	4	7 7/16
9 AX	28.87	9 ZX	35.20	9	5¼	3 9/16	4	7 11/16

Capacities at 1725 RPM.

For Series I, I-R, I-P, 55AX and 55ZX Pumps

Gear Size No.	Pipe Size In.	2-PSI. Outlet Pressure GPM.	Hp.	40-PSI. Outlet Pressure GPM.	Hp.	100-PSI. Outlet Pressure GPM.	Hp.
1½	⅛	2.10	⅙	1.75	⅙	1.50	¼
2	¼	4.10	¼	3.58	⅓	3.00	½
3	⅜	7.42	⅓	6.75	¾	6.00	1½
4	½	10.50	½	9.67	¾	8.50	2
7	¾	19.75	¾	19.00	1½	18.00	3
9	1	23.33	1	22.50	2	21.00	3

International Series II



Motor-driven units to be used in place of Series I where space is at a premium. Corrosion-resistant bronze housing and gears, micro-finished stainless steel shafts, oilless carbon bearings, mechanical pressure seal. Powered with 110-volt, a.c., ⅓-hp. thermal overload motor, specially machined for pump mounting.

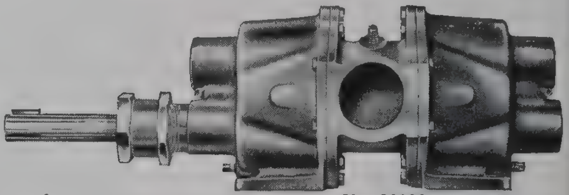
No.	Pump Head Only Each	Gear Size No.	Maximum Dimensions—Inches Height	Width Including Motor	Length
1½CCC	$24.20	1½	6¾	6½	12¾
2 CCC	27.22	2	6¾	6½	12¾

Complete unit with motor, price upon request.

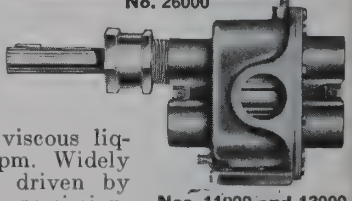
Capacities at 1725 RPM.

No.	Pump Size In.	Capacity, Gallons per Minute—Outlet Pressure PSI. 0	25	50	75	100
1½CCC	¼	2.10	1.83	1.67	1.58	1.50
2 CCC	⅜	4.10	3.67	3.17	2.83	....

International Series I-F



No. 26000



Nos. 11000 and 13000

Heavy bronze construction with carbon bearings, for continuous service up to 900 rpm., or intermittent service up to 1800 rpm. Particularly suitable for viscous liquids at speeds below 300 rpm. Widely used for fire protection, driven by power take-off from truck transmission.

Nos. 11000 and 13000 also available with lower shaft.

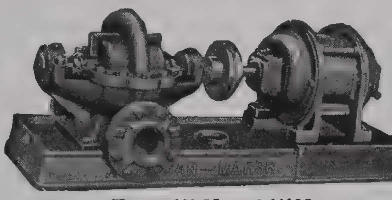
No.	Each	Gear Size No.	Maximum Dimensions—Inches Height	Width	Length
11000	$93.50	11	6½	5	11⅞
13000	110.00	13	6½	5	12⅞
26000	242.00	13	6½	6	19⅜

Capacities

No.	Speed RPM.	Pipe Size In.	Capacity, GPM.—Outlet Pressure, PSI. 0	25	50	75	100	150
11000	400	1¼	11	9	7	5	3	...
13000	400	1½	18	16	14	12	10	7
26000	400	2	35	32	28	24	20	13
11000	1200	1¼	39	37	35	33	31	27
13000	1200	1½	60	59	57	56	54	52
26000	1200	2	117	115	112	107	104	102

American-Marsh Single-Stage Centrifugal Pumps

Ball Bearing—Horizontally Split Case—Double Suction



Types HLM and HIM

A pump of high efficiency, dependable performance, and low upkeep.

All interior working parts are easily accessible without disturbing suction or discharge pipe connections. The impellers are of the double suction type, hydraulically and mechanically balanced.

The direction of rotation of standard pump is right hand (clockwise). Left-hand rotating pump can be furnished if desired. Pump is usually operated by direct connecting to an electric motor through a flexible coupling. Can be arranged for flat or V belt drive with pulleys on the over-hanging end of the shaft or on extended shafts with one or two outboard bearings.

Pumps regularly constructed of various metals are designated by the following Metal Specifications.

Metal Specifications

Part	Standard Fitted	Bronze Fitted	All Iron	All Bronze
Casing.........	Cast Iron	Cast Iron	Cast Iron	Bronze
Impeller........	Cast Iron	Bronze	Cast Iron	Bronze
Impeller Seal Rings........	Bronze	Bronze	Cast Iron	Bronze
Shaft...........	Stainless Steel	Stainless Steel	Stainless Steel	Monel Metal
Water Seal Cage.	Bronze	Bronze	Cast Iron	Bronze
Stuffing Box Glands.......	Bronze	Bronze	Cast Iron	Bronze
Bolts, Studs and Nuts.........	Steel	Steel	Steel	*Steel or Bronze

*Steel is standard; bronze furnished only when specified.

Construction

CASING. The casing is of cast iron containing up to 40 per cent steel or other metal as specified. It is of the volute type with double suction, split on the horizontal center line with suction and discharge nozzles, as well as the bearing brackets, cast integral with the lower half. Removal of the upper half of the casing gives access to interior of pump.

IMPELLER. The impeller is of the double suction, enclosed type. It is made of cast iron containing up to 40 per cent steel, bronze or special alloy; machined and polished.

SEAL RINGS. Impeller seal rings are made of bronze or other metal as required.

STUFFING BOXES. Extra deep, designed for six rings of packing in addition to the water seal cage with which each stuffing box is provided. Under each stuffing box is a drip pocket with tapped drain outlet.

GLANDS. Hinge bolted type, split for easy removal and fastened together with special cap screws.

SHAFT. Stainless steel. Although the standard stainless steel shaft is recommended as being superior, a bronze covered, cold rolled steel shaft can be furnished instead when specified, at extra price.

BEARINGS. Both the outboard and inboard ball bearings are of the deep groove type, precision grade, with cartridge mounting, permitting the removal of shaft without exposing or disturbing the bearing assembly. The outboard bearing is confined rigidly in the bearing housing to compensate for any unbalanced thrust, while the inboard bearing is set with sufficient clearance to allow for shaft expansion.

FLEXIBLE COUPLING. Of the Falk-All Metal type.

BASE. Cast iron, has raised lip, grouting hole, machined leveling pads, and a tapped drain outlet.

COMPANION FLANGES. Furnished only when specifically ordered, and at extra price.

Sizes and Capacities

Type HSM—High Speed

At Speed of 3500 RPM.

No.	Pipe Opening —Inches— Discharge	Pipe Opening —Inches— Suction	At Maximum Head Gpm.	At Maximum Head Total Head Feet	At Maximum Head Brake Hp.	At Highest Efficiency Gpm.	At Highest Efficiency Total Head Feet	At Highest Efficiency Brake Hp.	At Greatest Capacity Gpm.	At Greatest Capacity Total Head Feet	At Greatest Capacity Brake Hp.
1½	1½	2	40	242	7	120	210	10½	150	185	12
2	2	2½	100	255	11	200	240	17	280	200	21
2½	2½	3	160	320	23	320	300	33	380	280	36
3	3	4	200	320	28	450	280	40	550	240	44
4	4	5	250	370	45	700	320	73	800	300	78
5	5	6	400	380	78	1000	350	115	1200	320	125

Type HIM—Medium Head

At Speed of 1750 RPM.

No.	Pipe Opening —Inches— Discharge	Pipe Opening —Inches— Suction	At Maximum Head Gpm.	At Maximum Head Total Head Feet	At Maximum Head Brake Hp.	At Highest Efficiency Gpm.	At Highest Efficiency Total Head Feet	At Highest Efficiency Brake Hp.	At Greatest Capacity Gpm.	At Greatest Capacity Total Head Feet	At Greatest Capacity Brake Hp.
1½	1½	2	60	165	7½	160	150	11	180	140	11½
2	2	2½	80	160	8	240	140	14	280	125	14
2½	2½	3	120	175	12	360	155	20	400	145	21
3	3	4	150	170	13	450	150	22½	550	130	25
4	4	5	250	170	20	700	150	32½	850	130	35
5	5	6	400	180	35	1200	160	58	1600	120	63
6	6	8	900	195	60	1600	180	91	2200	150	105

Type HLM—Low Head

At Speed of 1750 RPM.

1½	1½	2	30	60	1¼	80	50	1¾	130	25	2⅕
2	2	2½	40	60	1⅗	140	50	2¾	240	25	3¼
2½	2½	3	80	80	4	280	65	6¼	375	40	7¾
3	3	4	150	78	5¼	350	70	8	500	50	9¼
4	4	5	200	95	10	550	85	15	850	55	18
5	5	6	300	95	12½	800	80	19	1200	45	21
6	6	8	700	130	37	1300	120	48	1700	100	55
8	8	10	1000	170	75	2400	145	102	3000	110	115
10	10	12	1600	165	125	4000	145	180	5200	110	190
12	12	14	................On Request................								

Type HCM—High Head

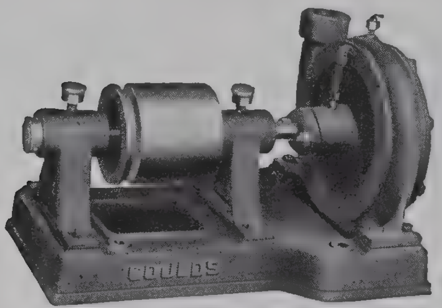
At Speed of 1750 RPM.

¾	¾	1	9	60	¾	25	45	1	34	35	1½
1	1	1¼	10	60	1	45	50	1¼	50	40	1¾
1¼	1¼	1½	20	65	1¾	50	50	2½	100	30	2¾
1½	1½	2	40	95	3	100	80	4½	180	40	5
2	2	2½	50	115	5	120	100	10	300	70	12½
3	3	3½	100	155	12½	275	130	20	550	100	23
3½	3½	4	200	160	18	400	150	30	675	120	32
4	4	5	400	240	48	900	235	70	1100	200	80
5	5	6	600	270	60	1200	240	95	1500	200	150
6	6	8	1000	270	105	1900	235	140	2200	200	145
8	8	10	1000	370	210	3500	320	300	4000	3000	375

Larger sizes in all types available

No. 3010 Goulds Centrifugal Pumps

Belt Driven
Horizontal—Single Stage—Single Suction



For general service. Has capacities from 5 to 100 gpm. with heads up to 70 feet. Fitted with single tight pulley for belt drive. Has combination flat and single-grooved V-pulley (B section) making pumps adaptable for flat or V-belt drive. Maximum hp. single V-belt, 1 hp. Open type impeller, babbitted bearings.

Standard Fitted cast iron casing and impeller, steel shaft. **All Iron** parts in contact with liquid are of iron except steel shaft.

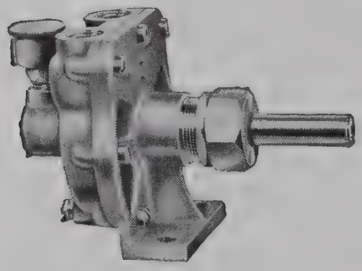
Maximum Suction Lift, 1-inch size—10 feet; other sizes —15 feet. Suction lift should not be more than ⅔ of total head. Maximum total pressure is 50 pounds of which not more than 15 pounds may be suction pressure.

Ratings based on pumping clear, cold water.

Size In.	Suction and Discharge Inches	Normal Cap GPM.	Diam. and Face Pulley, In.	Length Inches	Width Inches	Height Inches	Ship. Wt. Lb.
1	1	5, 10 20, 25	3x2½	12	8	9	30
1½	1½	20, 30, 45	4x3	12	10	10	35
2	2	45, 70, 100	5x5	21	13	13	100

No. R-9300-A Marine Duraflex Pumps

Self-Priming



Combines advantageous features of both the centrifugal and positive displacement type pumps.

Rotor is tough synthetic compound (like a rubber tire) with flexible vanes. It passes through two inclined ramps. In passing through the cams, the fluid is squeezed out—the flexible vanes open to reload at the intake. Rotor can withstand erosive action of grit-laden fluids.

Rotation is clockwise.

Bronze construction. Stainless steel shaft; ⅝-inch diameter. Monel shaft and 4-inch diameter cast iron plated pulley also available.

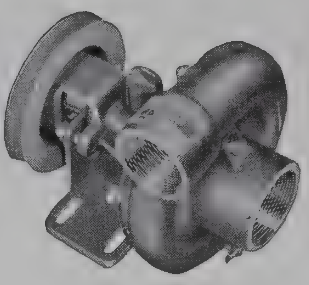
Speeds of 100 to 3600 rpm. Pressures up to 60 pounds. Horsepower, ⅓ at 1750 rpm.

Size inlet and outlet, ½-inch pipe thread.

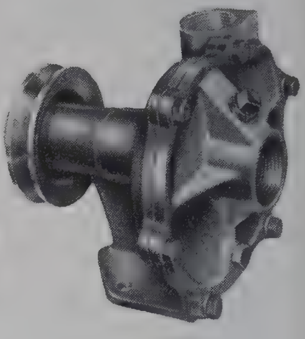
Weight, 6 pounds.

Prices on request.

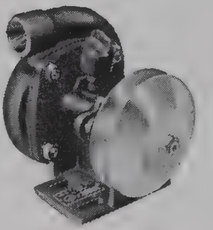
Marine Centrifugal Pumps



No. R-110



No. 2400-C



No. R-30

Pulleys carry radial load directly over ball bearing. Ball bearing is sealed and grease packed for life; requires no further lubrication. Intake and discharge are threaded for standard pipe sizes. Accurate surfaces provide streamlined flow and high efficiency. Drain cock is provided so the unit may be drained in freezing weather. Pump is tapped for priming connection.

Clockwise rotation. B section V-belt drive.

No. R-30. Body, housing and impeller are bronze. Monel metal shaft. Base is slotted to permit adjustment of belt tension. Packing gland is backed by semi-permanent metallic packing. Cast iron plated pulley.

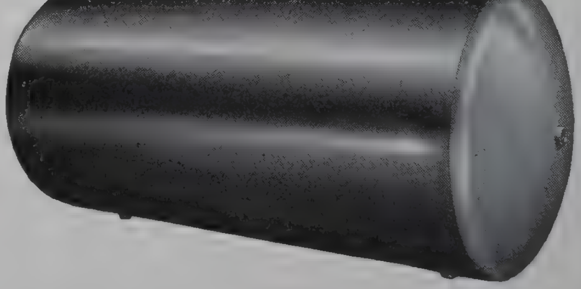
No. R-110. Same as No. R-30 except that an adjustable pulley assembly for belt adjustment is available and is especially desirable where base adjustment cannot be made.

No. 2400-C. Cast iron construction with bronze impeller. Two mounting holes in base are provided to fasten pump securely. Packing: a bellows type seal with all parts enclosed in a metal casing insures long trouble-free service. Non-adjustable pulley.

No.	R-30	R-110	2400-C
Intake Pipe Tap Size.............in.	1	1½	1¼
Discharge Pipe Tap Size..........in.	¾	1¼	1
Length Overall...................in.	6⅞	8¾	6¾
Width Overall....................in.	5	6	7⅛
Height Overall...................in.	5½	7¼	5$\frac{13}{16}$
Pulley O.D.......................in.	4	5	4
Speed: Minimum...............rpm.	2000	2100	1500
Maximum...............rpm.	4000	3600	4000
Maximum Feet Head Pressure.......	55	70	70
Size Priming Connection.........in.	⅛	¼	⅜
Weight...........................lb.	10	18	9

Welded Steel Storage Tanks

Horizontal or Vertical
100 Pounds Working Pressure—150 Pounds Test



Available in black or galvanized and with manhole or hand-hole in head or shell.
Sizes and prices on application.

KENCO PUMPS STOCKED IN SOUTH BEND ONLY

No. 48 Penberthy Automatic Electric Sump Pumps

⅓-Hp. Motor—110 Volts, 60 Cycles—1750 RPM

Split-phase motor of rugged construction equipped with grease sealed precision bearings for vertical operation.

Alternating current, 220 volts, 60 cycles, optional.

Single pole mechanical switch mounted with sturdy housing cast integral with end bell of motor. Switch is controlled by copper float sliding freely on supporting column. Adjustable stop governs water level at which pump starts and stops.

Overload protection built into motor.

Top suction submerged type pump equipped with strainer of ample area.

Double shroud impeller designed to eliminate vertical thrust. Impeller shaft of Tobin bronze.

Pipe connection 1¼ inches. Sump depth, 2 feet. Height of pump, 38 inches. Base to motor, 28 inches. Diameter of base, 8 inches.

Capacities

Total discharge head equals the vertical distance from water level in sump to point of discharge plus all head lost by pipe friction.

Discharge Head....feet	1	5	10	15	20	22
Approx. Capacity..gph.	3000	2600	2200	1600	800	400

Shipping weight, 39 pounds.

No. **48**..each **$78.00**

Sump Covers

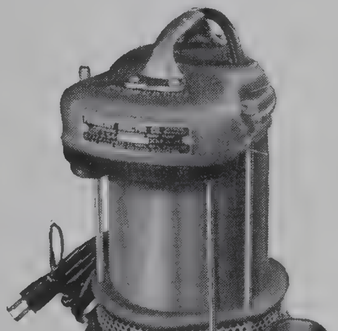
Provides proper working clearance for the automatic control mechanism.

Sump Cover No...................	1	2	3
Each..................................	**$18.00**	**24.00**	**30.00**
Outside Diameter..........inches	19¾	24	27½
Shipping Weight..........pounds	21	41	54

No. 54 Penberthy Submersible Sump Pumps

⅓ Hp. Motor, 105 to 120 V., 60 Cycles

Single Phase—1725 RPM



Compact automatic operation, electrode controlled. For pits, vaults, tunnels, trenches and basements. May be used as a portable pump for draining flooded areas.

Iron and steel parts like pump casing and motor shell protected by plating or special coating before enameling and baking. Bronze impeller, double shroud with bronze inlet ring; removable perforated brass strainer.

Starts automatically when water rises 8 inches above sump bottom; stops when water falls to 2 inches, automatic starting level readily increased to 20 inches.

Built-in overload protection; permanently lubricated ball bearings; combination carbon ceramic rotary shaft seal.

Height, 12½ inches. Diameter at base, 10 inches.

Discharge Head....ft.	1	5	10	15	20	24
Approx. Capacity.gph.	3000	2600	2200	1600	1300	400

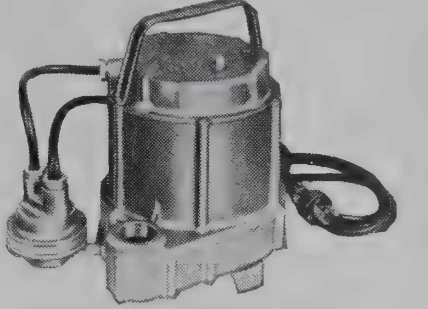
Shipping weight, 40 pounds.

No. **54**..each **$98.00**

No. P-109 Kenco Submersible Sump Pumps

Floatless—⅓-Hp. A.C. Motor, for 115 Volts

For flooded basements, underground utility installations, etc. Liquid-level switch control features diaphragm switch with no moving parts exposed to water. Permits pumping sump dry: low height allows closed flush-floor installations. Power failure will not cause pump to flood out.



Made for continuous operation. No bearings operating in water: all bearings operate in oil. Hermetically sealed motor runs in oil. Overloading does not cause motor failure because heat dissipation is provided. No grease cups, external oiling or periodic servicing required.

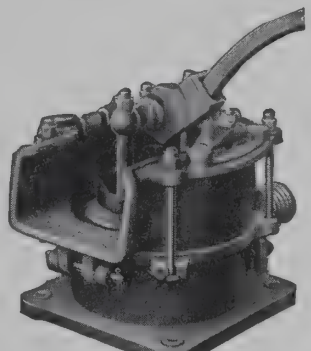
Height of pump, 9½ inches. Normal diameter, 8½ inches. Maximum diameter, 12⅞ inches. Pipe connection, 1¼ inches. All types with 10-foot rubber-covered wire with plug. No. P-109MA has Thru-Cord switch for manual starting at any depth of water (after manual start, cord switch can be set; pump shuts off automatically).

Bronze		Cast Iron		
No.	Each	No.	Each	Type
P-109A	**$97.50**	**P-109A14**	**$79.50**	Full Automatic
P-109N	**87.50**	**P-109-N4**	**72.50**	Non-Automatic
P-109MA	**104.00**	**P-109-MA4**	**85.50**	Manual & Auto.

	Max.	Approx. Cap., GPH.				
	Dia.	Discharge Head, Ft.				Wt.
Type	In.	**10**	**15**	**20**	**22**	Lb.
Full Automatic...........	13	3300	2400	1200	400	50
Non-Automatic...........	11	3300	2400	1200	400	45
Manual & Auto...........	13	3300	2400	1200	400	50

Edson Diaphragm Suction Pumps

Side Inlet—Type A



This pump will raise water containing sand, gravel, or sewage matter, or anything liquid enough to flow. Adapted for use by contractors and by city and town sewer departments water works, railroads, foundation and bridge builders.

The hinge construction makes it easy for one man to open the head to insert diaphragm. It insures the head going back exactly where it belongs, with lugs properly aligned, and without displacing diaphragm.

The beveled rim around outer circumference of top of base properly centers the diaphragm.

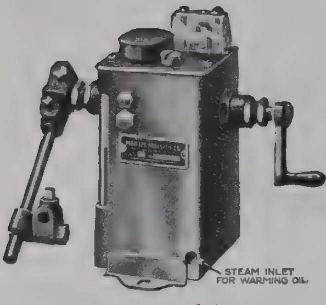
The groove in top of base to receive corresponding bead on diaphragm, helps to center diaphragm and also makes a tight fit, thus insuring full suction of water instead of leakage of air through under the diaphragm.

No.	Suction Pipe, In.	Style of Thread	Capacity per Hour Gallons	Number of Men Required
2	2½	Hose or Std. I. P.	1800	1
3	3	Hose or Std. I. P.	4000	1
4	4	Standard I. P.	6000	1

Model XD Manzel Force Feed Lubricators

For Steam Cylinder Lubrication

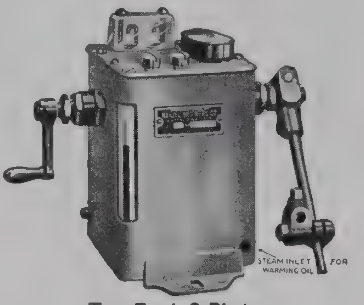
Ratchet Drive



Single Feed, 3-Pint Left Hand Drive

Being entirely automatic in operation, this pump requires no attention but starts, stops, speeds up and slows down just as the engine does. Measures out oil to the engine cylinder, drop by drop just as it is needed, always in proportion to the engine speed. Operates equally well on high or low speed engines, handles light or heavy oil, forces against any pressure used on a steam engine and works satisfactorily in any temperature. All working parts are inside of reservoir, out of dust and dirt and work in oil continually.

The feed is adjusted by turning the regulating nut to the right or left to decrease or increase the supply. This may be done while the engine is running or before starting. Each feed is regulated independently. Has hand attachment for use before starting the engine or for momentarily increasing the supply while the engine is running, and a gauge glass to show the amount of oil in reservoir.



Two Feed, 3-Pint Right Hand Drive

Equipped with a double ball check valve for each line. This valve is recommended on services where pressures over 100 pounds or spasmodic pressures are encountered.

Outlets in rear. Regularly furnished with fittings for ¼-inch iron pipe. Connections other than standard can be supplied at an additional charge. Following sizes are available: ⅛ or ¼-inch iron pipe and 3/16, ¼, 5/16, ⅜ or .405-inch O.D. tubing.

Any size lubricator can be furnished with standard 37½:1 ratio rotary drive on either right or left end at an additional charge (not including pulley). Other ratio rotary drives are available.

The 1½ and 3-pint lubricators are equipped with heating chambers (for outdoor use) for warming oil in extremely cold weather. Heating chamber on any other size available at an additional charge.

Lubricators with two feeds or more can be furnished with two compartments, with reservoir 3 inches longer than minimum length listed under each feed. Extra charge.

The 1½, 3 and 4-pint lubricators are regularly furnished with fastening lugs on front and back, but can be supplied with lugs on ends if desired. All other sizes have lugs on ends. For other than standard type there is an extra charge.

Painted finish. Nickel-plated finish also available.

No. Feeds	Reservoir Lgth. In.	Ctr. to Ctr. Front and Back Lugs, In.	Ctr. to Ctr. End Lugs, In.	Approx. Cap. Pints
1	3½	5¾	4¾	1½
1	4½	5¾	5¾	3
1	6½	5¾	7¾	4
2	4½	5¾	5¾	3
2	6½	5¾	7¾	4
3	6½	5¾	7¾	4
3	10½	...	11¾	6
4	6½	...	7¾	4
4	10½	...	11¾	6
5	10½	...	11¾	6
6	10½	...	11¾	6
7	10½	....	11¾	6
8	10½	....	11¾	6
9	14½	....	15¾	8
10	14½	....	15¾	8
11	14½	....	15¾	8
12	18½	....	19¾	10
13	18½	....	19¾	10
14	18½	....	19¾	10
15	18½	....	19¾	10
16	22½	....	23¾	12

Detroit Standard Double Connection Lubricators

For use on all kinds of reciprocating steam engines, steam pumps, etc.

Not recommended for pressures in excess of 150 pounds.

Installed with both connections between the boiler and throttle.

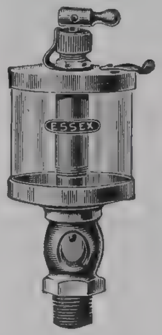
Finished in polished brass.

Capacity	½ Pt.	1 Pt.	2 Qt.
Each	$45.50	49.00	53.00
Pipe Thread on Support Arm. . inches	½	½	½

No. 33A Essex Pilot Glass Body Oil Cups

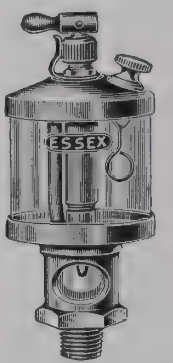
Snap Lever Sight Feed

Made of cast brass; compact, and simple in operation.



Size No.	O.D. of Glass Inches	Height of Glass Inches	Cap. Ounces	I.P. Thread Inches
0	1¼	1⅛	⅝	⅛
1	1½	1⅜	1	¼
1½	1¾	1⅝	1½	¼
2	2	1⅞	2½	⅜
3	2¼	2⅛	4	⅜
4	2½	2⅜	5	⅜
5	3	3	10	½
6	3½	4	Pt.	½
7	4¼	5	Qt.	¾

No. 77 Essex Hydro Glass Body Sight-Feed Lubricators



For gas, gasoline and oil engines and air compressors. Feed regulated by turning knurled nut; started or stopped by snap lever. Shank fitted with ball check, preventing oil from blowing back.

Nos. 1½ to 5 packed in cartons of 6 each; No. 6, three each; No. 7, one each.

No.	Each	O.D. of Glass In.	Ht. of Glass In.	Cap. Oz.	Shank Pipe Thread In.
1½	.....	1¾	1⅝	1½	¼
2	.....	2	1⅞	2½	⅜
3	.....	2¼	2⅛	4	⅜
4	.....	2½	2⅜	5	⅜
5	.....	3	3	10	½
6	.....	3½	4	Pt.	½
7	.....	4¼	5	Qt.	¾

No. 100 Essex Glass Cylinders and Cork Washers

These glasses are interchangeable with glasses used in all Essex oil cups, oil pumps and glass body lubricators and are what are known as standard sizes.

Size No.	Glasses Each	Cork Washers per Doz.	O.D. of Glass Inches	Ht. of Glass Inches
000	....	....	1	⅞
00	....	....	1⅛	1
0	....	....	1¼	1⅛
1	....	....	1½	1⅜
1½	....	....	1¾	1⅝
2	....	....	2	1⅞
3	....	....	2¼	2⅛
4	....	....	2½	2⅜
5	....	....	3	3
6	....	....	3½	4
7	....	....	4¼	5
8	....	....	5½	7

Venango Gravity Feed Cups

May be used on any plain or ring type bearing in an upright position or at angles up to 45°, especially upon line shaft hanger boxes. Used with Keystone Cup Grease Soft, it will show high efficiency on all journals from 1 to 6 inches in diameter and at speeds from 50 to 5000 rpm. On ring type bearings, rings are removed and cups installed the same as on plain bearings.

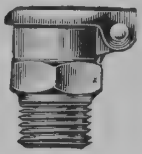
It is made from high quality soft drawn sheet steel and is very serviceable. Cover is hinged securely to body and cannot become detached; therefore, the grease is always clean, since cover can never fall to the floor nor can it be laid on a dirty ledge to gather dirt and grit which would otherwise mix with grease and cause a hot journal.

This system not only provides safe and clean lubrication, but it is also economical; for example, 1 or 2 cups (cups will feed 3½ inches from center), each containing 3 oz. of Keystone Soft Cup Grease, will serve the bearing of a 2 7/16-inch line shaft 260 rpm. for at least 3 months without replenishment. Many installations run upwards of 6 months. No drip pans needed. Cup functions automatically. Feed is accomplished by vibration, gravity and partial vacuum caused by revolving shaft. Soft grease follows copper rod to journal. When shaft is stopped, grease feed ceases.

No.	1	2
Each	.....	.....
Shank ... inches	1/8, 1/4	1/4, 3/8
Diameter ... inches	1 3/4	2 1/4
Height ... inches	2 7/8	3 5/8
Capacity ... ounces	1 1/2	3

Gits Style B Vertical Oil Hole Covers

Threaded



For applications requiring a strong, dependable oil hole cover, generally applicable to motors, machinery and moving parts of all types. Machined from solid bar stock and precision threaded for a tight fit.

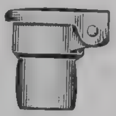
Self-closing spring hinged cover will not break off under normal service. Convenient hex wrench hold.

No.	Per 100	Thread Inches	Body Diam. In.	Over-all Ht: In.
101	$8.15	1/4-32	1/4	9/16
102	9.15	10-32	5/16	9/16
103	9.15	1/4-32	5/16	9/16
104	9.15	5/16-32	5/16	9/16
105	11.40	1/4-32	11/32	3/4
106	14.00	3/8-24	11/32	3/4
107	12.45	5/16-32	13/32	13/16
108	11.30	1/8 *Pipe	13/32	13/16
110	14.80	1/8 *Pipe	15/32	7/8
111	18.65	1/2-24	15/32	7/8
112	21.80	1/8 *Pipe	19/32	1 1/8
113	21.80	1/4 *Pipe	19/32	1 1/8
118	27.90	1/8 †Pipe	19/32	1 1/8
121	30.30	1/2 *Pipe	3/4	1 7/16

*Male. †Female.

Gits Style R Vertical Oil Hole Covers

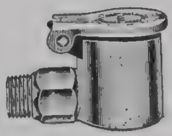
Shoulder Drive



Designed for a drive fit into a drilled hole; contour of shank assures easy installation and a snug fit. Shoulder permits insertion to a predetermined depth so that it may be driven in without danger of cracking castings. Extruded brass covers are one piece body and hinge.

No.	Per 100	Body Material	Drive Diameter Inches	Body Diam. In.	Over-all Ht. In.
301	$7.95	Extruded Brass	.190- .192	1/4	15/32
302	8.50	Extruded Brass	.253- .255	5/16	17/32
303	10.60	Extruded Brass	.315- .317	3/8	9/16
304	11.25	Steel	.378- .380	1/2	11/16
305	11.50	Steel	.503- .505	5/8	13/16
306	20.70	Drawn Steel	.628- .630	3/4	1 1/16
307	21.60	Drawn Steel	.753- .755	1	1 1/16
308B	28.00	Drawn Steel	1.003-1.005	1 1/4	1 3/16
309	50.00	Drawn Steel	1.253-1.255	1 5/8	1 5/8
311	50.00	Drawn Steel	1.503-1.505	1 5/8	1 1/4
312	24.00	Steel	.315- .317	11/32	1/2
315	11.95	Extruded Brass	.315- .317	13/32	21/32
316	11.95	Extruded Brass	.253- .255	13/32	11/16
317	13.95	Brass	.190- .192	13/32	11/16
318	13.95	Brass	.158- .160	13/32	21/32
324	20.15	Steel	.315- .317	5/8	7/8
325	12.05	Steel	.315- .317	15/16	19/32
326	31.85	Drawn Steel	1.128-1.130	1 1/4	1 1/8
328	12.65	Steel	.378- .380	1/2	1/2
329	.....	Steel	.628- .630	3/4	21/32
330	4.65	Drawn Steel	.253- .255	5/16	7/16

Style Y Gits All-Steel Oil Cups



Brazed Elbow

Used as a filler plug or overflow gauge on oil reservoirs for electric motors, etc. Body can be notched to indicate desired oil level at extra cost.

No.	Per 100	Male I.P. Thread Inches	Height Overall Inches	Length Overall Inches	Cap. Oz.
801	$19.75	1/8	15/16	1 3/8	3/32
802	23.75	1/8	1	1 1/2	1/8
803	31.00	1/8	1 7/16	1 3/4	3/8
804	35.55	1/4	1 7/16	2	3/8
805	40.55	*1/4	1 1/2	1 7/8	3/8
806	50.55	1/4	1 9/16	2 1/4	3/4
807	72.20	3/8	2 1/16	2 1/2	1 5/8
808	82.00	1/2	2 1/16	3 5/8	3 1/2
809	25.40	*1/8	1	1 1/4	3/32

*Female.

No. 119 Bowen Empress Straight Type Hinge Lid Oil Cups

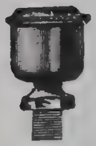
Cap can be operated with oil can spout, closes automatically and is practically dust proof. Fitted with tube and wick converting it into an oil reservoir with self feeding wick. Standard threads sent unless otherwise specified. Nickel-plated steel is standard.

When ordering, specify No., Size No. and finish.

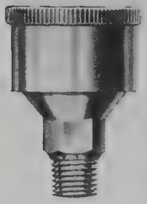
Closed

Size No.	Per 100	Capacity Ounces	Stock Pipe Thread Inches	Body Diam. Inches
4	$28.00	1/16	1/8	9/16
5	32.30	1/8	1/8	11/16
6	35.00	3/16	1/8	13/16
7	44.70	1/4	1/8	15/16
8	49.20	1/2	1/8	1 3/32
9	55.10	3/4	1/8	1 1/4
10	59.20	1 1/2	1/4	1 5/8

Plain Brass Oil Cups



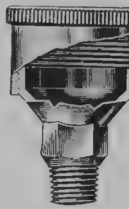
No.	Each	O.D. In.	Pipe Thread In.	No.	Each	O.D. In.	Pipe Thread In.
1	$.30	3/4	1/8	6	$1.25	1 3/4	3/8
2	.35	7/8	1/8	7	1.60	1 7/8	3/8
3	.40	1	1/4	8	1.75	2	1/2
4	.60	1 1/4	1/4	9	2.25	2 1/4	1/2
5	.90	1 1/2	3/8	..	....	..	..



No. 200 Empress Compression Grease Cups

Plain type cups drawn from sheet metal.

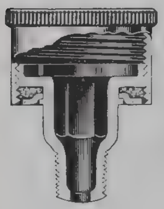
Specify No., size No., and size of thread and finish upon order.



Size No.	Steel per 100	Dull Brass per 100	Cap. Oz.	Male Thread Inches Stock	Male Thread Inches Optional	O.D. In.	Height Closed In.
000	$10.80	$24.90	1/4	1/8 Pipe	..	15/16	1 15/32
00	14.17	39.40	1/2	1/8 Pipe	1/4	1 3/16	1 3/4
0	17.70	52.05	2/3	1/4 Pipe	1/8	1 7/16	2 1/16
1	21.75	62.40	1	1/4 Pipe	1/8	1 3/4	2 11/32
2	32.50	98.80	2	3/8 Pipe	1/4	2 1/4	2 21/32
3	47.75	179.40	3 1/2	1/2 Pipe	3/8	2 11/16	3 1/16
4	66.20	234.00	5	1/2 Pipe	3/8	3 1/4	3 1/4

No. 207 Bowen Empress Grease Cups

Leather Washer



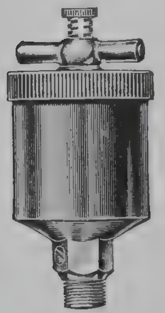
Drawn from sheet metal.

The leather washer prevents grease leaking by threads and keeps cap from jarring loose from vibration.

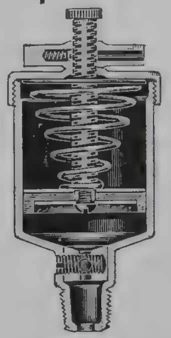
Packed 12 grease cups in a carton.

Size	Steel per 100	Dull Brass per 100	Capacity Ounces	Male Pipe Thread Inches	Outside Diam. Inches	Height Closed Inches	Weight per 100 Pounds
000	$21.10	$32.15	1/4	1/8	15/16	1 1/4	8.3
00	23.95	44.20	1/2	1/8	1 3/16	1 13/32	14.
0	33.10	68.20	2/3	1/4	1 7/16	1 13/16	22.3
1	42.95	86.90	1	1/4	1 3/4	2 1/32	31.3
2	67.00	148.25	2	3/8	2 1/4	2 1/2	57.

No. 215 Empress Spring Compression Grease Cups



Exterior



Sectional

A large capacity spring compression or automatic grease cup especially adaptable for use on high grade machinery.

Drawn from sheet metal. Shank fitted with screw to regulate amount of grease to be fed to bearing. Handle on plunger can be set to allow for feed of desired amount of grease. Packed 1 dozen in a carton.

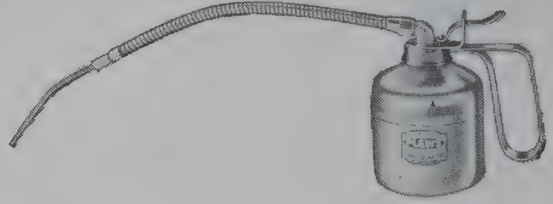
Size	Steel Per 100	Pol. Brass Per 100	Cap. Oz.	I.P. Thread Inches	O.D. Inches	Height Closed Inches	Height Open Inches
00	$148.70	$193.10	1/2	1/8	1 5/16	2 11/16	3 1/2
0	167.10	235.25	1	1/4	1 1/2	3 1/4	4 13/16
1	185.40	305.95	1 1/2	1/4	1 13/16	3 3/4	5 5/8
2	238.90	425.85	3	3/8	2 9/32	4 1/2	6 7/8
3	326.40	584.55	6	1/2	2 13/16	5	7 5/16

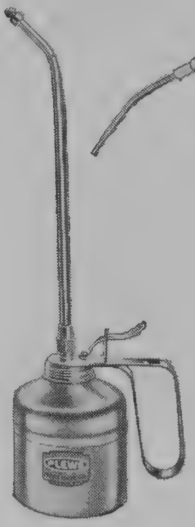
Series 800 Plews Force Feed Oilers

Detachable Spout—Thumb Lever Action

Oilers furnished with an elbow type fitting on the cap, flare fitting spout, and angled straight pump. Pumps have detachable lower and upper tubes for easy cleaning.

Available in three capacities; with vertical or horizontal spouts.



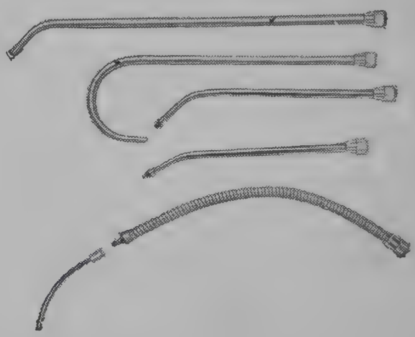


DRS Types have detachable rigid spouts with fixed ledged-cone tips and are furnished with spouts as listed unless otherwise specified. Rigid spouts are of leakproof unbreakable welded steel.

DFS Types are furnished with detachable flexible spouts in lengths as listed, unless otherwise specified, and detachable flexible hollow wire extension. The flexible spout is especially useful in reaching hard-to-get-at lubrication points.

Rigid Spout				Flexible Spout						
No.	Each	Spout Size In.	Ship. Wt. Lb. per Doz.	No.	Each	Spout Size In.	Capacity	Ship. Wt. Lb. per Doz.	Spout Type	No. per Carton
834-DRS	$2.75	8	11	834-DFS	$3.55	15	1 Pt.	12	Horiz.	4
838-DRS	2.75	8	11	838-DFS	3.55	15	1 Pt.	12	Vert.	4
839-DRS	3.00	10	13	839-DFS	3.75	15	1 1/2 Pt.	14	Vert.	3
842-DRS	3.00	10	13	842-DFS	3.80	18	1 1/2 Pt.	14	Horiz.	3
845-DRS	3.50	11	18	845-DFS	4.20	18	1 Qt.	19	Vert.	3
860-DRS	3.50	11	18	860-DFS	4.20	18	1 Qt.	19	Horiz.	3

Extra Spouts



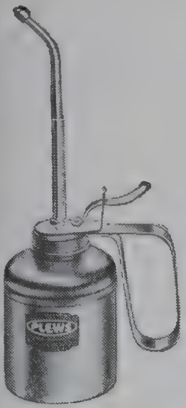
Detachable Rigid Spouts. Available in 8-inch with fixed ledged-cone tip; 10-inch with fixed ledged-cone tip; 11-inch with fixed ledged-cone tip; 16-inch without ledged-cone tip; 26-inch without ledged-cone tip; 13-inch with 180° arched spout end; 60-inch with 180° arched spout end.

Detachable Flexible Spouts. Available in 15-inches overall, with detachable flexible hollow wire extension threads; 18 inches overall, with detachable flexible hollow wire extension threads.

Extra spouts may be substituted for spouts ordinarily furnished at an adjusted cost. **Specify** model number for which spout is to be used.

Plews Force Feed Oilers

Vertical Spout Model—Cone-Tipped Vent



Once primed, oiler will feed efficiently when held in any position.

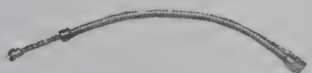
Aluminum lacquer finish. Brass tubes; phosphor bronze springs. Large plated steel balls are hard to clog and readily accessible for cleaning out chaff and dirt. Welded steel spouts.

Ledge on cone tip to open spring held covers of oil cups in one operation.

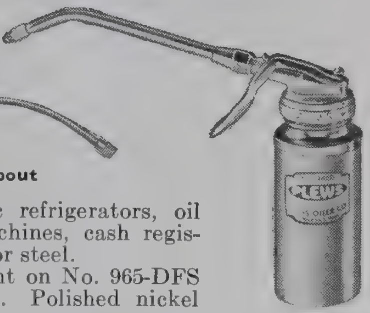
No.	Each	Capacity	Spout In.	Wt. Lb. per Doz.
N-3335	**$2.25**	1-Pt.	9	10
N-3375	**2.45**	1½-Pt.	9	13
N-3385	**2.95**	1-Qt.	10	17

No. 965 Plews Pistol Oilers

Capacity, 6 Ounces



Flexible Spout



No. 965DRS

For servicing electric refrigerators, oil burners, computing machines, cash registers. All parts of brass or steel.

Cone-tipped spout vent on No. 965-DFS fitted with closure cap. Polished nickel finish.

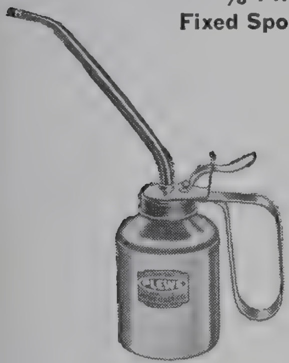
Packed 1 to carton. Shipping weight 10 lb. per dozen.

No. **965-DFS**, 13-Inch Flexible Spout	each	**$3.25**
No. **965-DRS**, 5-Inch Seamless Brass Spout	each	**2.60**
Holder	each	**.15**

No. N-20 Plews Force Feed Machinery Oilers

⅞-Pint Capacity

Fixed Spout at 50° Angle



Will pump any oil that will flow. Lower section of body is of one-piece drawn steel.

Entire working assembly in one detachable unit. Fixed cone-shaped tip on spout with ledge to open spring covers of oil cups. Lever handle for easy operation. Cadmium plated balls and bronze springs prevent rusting of valves. Welded steel spout.

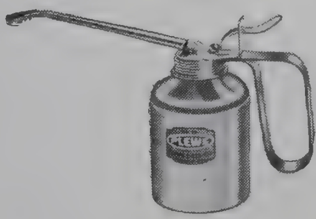
Nickel-plated finish.

Spout length, 7 inches.

No. N-**20** Ship. Wt. per Dozen, 11 Lb. . . . . each **$2.20**

No. N-25 Plews Force Feed Oilers

Capacity, ⅞ Pint



For all automotive service work, and for use as a bench oiler.

Ledge on single cone tip to open spring held covers of oil cups. Welded steel fixed spout.

Length of spout, 6 inches.

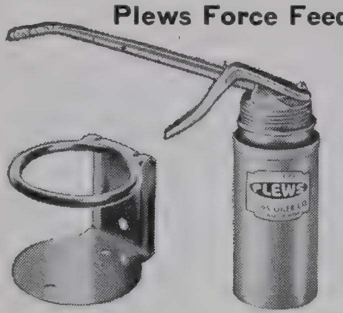
Nickel plated.

Packed 6 to a carton. Weight per dozen, 11 pounds.

No. N-**25** . . . . each **$2.20**

Plews Force Feed Pistol Oilers

Capacity, 6 Ounces



Will project oil a distance of 15 to 20 feet.

Metal; no leather plunger or valves. Ledge tip to open spring holds covers of oil cups in a one-hand operation. Polished nickel finish. Welded steel, 6-inch spout. Height, 5 inches.

Specify whether base holder or wall holder is desired.

No. N-**911**, Streamlined Model, with Holder, Single Ledged Cone Tip; Packed 1 in a Box; Weight per Dozen, 8 Lb.	each	**$2.30**
No. N-**1105**, Single Ledged Cone Tip on Spout, No Holder, Copper Plated and Copper Lacquered Finish; Indiv. Wrap; Wt., 6 Lb. per Doz.	each	**1.85**

Detachable Spouts for Plews Force-Feed Pump Oilers

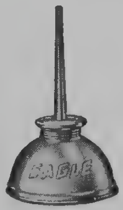
Rigid Type

Length Inches	For Nos.	Each
5	965D and 970D	**$.45**
5	982D	**.50**
8	834D and 838D	**.45**
10	839D and 842D	**.50**
11	845D and 860D	**.60**
13	839D and 845D (Arched)	**.75**
16	839D, 842D, 845D and 860D	**.75**
26	839D, 842D, 845D and 860D	**.85**
60	845D (Arched)	**2.45**

Flexible Type

Length Inches	For Nos.	Each
13	965D, 970D and 982D	**$1.10**
15	834D, 838D and 839D	**1.25**
18	842D, 845D and 860D	**1.30**

Eagle Copperite Finish Steel Oilers



Re-enforced insert type spouts. Seamless bodies with double seamed bottoms.

Mouth opening is 1⅜ inches wide.

All spouts are interchangeable.

The 9-inch spouts are furnished bent unless otherwise specified.

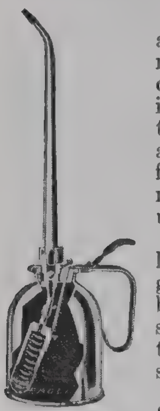
Packed 1 dozen in a carton.

No.	Each	Capacity Pints	Diameter Inches	Spout Length Inches	Wt. Lb. per Dozen
123C	**$.38**	¼	2⅞	3	2$\frac{5}{16}$
133C	**.38**	⅓	3½	3	2⅞
135C	**.40**	⅓	3½	5	3
139C	**.43**	⅓	3½	9	3¼
143C	**.45**	½	4	3	3⅝
145C	**.48**	½	4	5	3⅞
149C	**.50**	½	4	9	4⅛
153C	**.53**	1	4$\frac{5}{16}$	3	4⅞
155C	**.55**	1	4$\frac{5}{16}$	5	5
159C	**.58**	1	4$\frac{5}{16}$	9	5¼

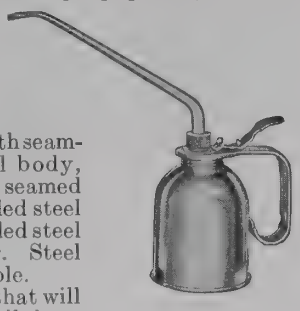
MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

Eagle Improved Hydraulic Pump Oilers



Upright Spout



Angle Spout

For use by mechanics, millwrights, farmers and service station attendants. Used in mills, mines, factories and foundries for shafting, conveyors, presses, shop equipment, harvesting machinery, tractors, trucks, automobiles, and for all general machine shop use.

Constructed with seamless drawn steel body, genuine doubled seamed bottom, and welded steel spout with extended steel thread protector. Steel spout is detachable.

Pumps any oil that will flow. Delivers oil in a full stream or one drop under perfect control, the quantity controlled by the pressure exerted on the thumb lever. The position of the one-piece handle and the thumb lever enables the operator to force oil in any angle from any position with the least effort.

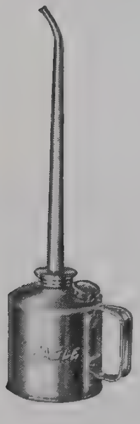
Oiler is Copperite finish. Couplings have machine cut threads. Machined and ground plunger. Ball valves.

Positive in its action, easy to operate and easy to clean. Packed 6 in a box.

With Upright Spouts

No.	Each	Extra Spouts Each	Cap. Pints	Length Spout Inches	Diam. Inches	Height Overall Inches	Wt. Lb. per Doz.
27	$1.75	$.40	¾	6	3	10½	10¼
279	1.85	.50	¾	9	3	13½	10½
28	2.50	.50	1	9	3⅝	14¼	14
2812	2.60	.60	1	12	3⅝	17¼	14¼
2815	2.70	.70	1	15	3⅝	20½	14½
29	2.85	.50	2	9	4¼	15½	16½
2912	2.95	.60	2	12	4¼	18½	16¾
2915	3.05	.70	2	15	4¼	21½	17
3012	3.30	.60	4	12	5¼	18¾	20
3015	3.40	.70	4	15	5¼	21¾	20¼
With 50° Angle Spouts							
27A	$1.75	$.40	¾	6	3	7½	10¼
279A	1.85	.50	¾	9	3	9	10½
28A	2.50	.50	1	9	3⅝	10	14
2812A	2.60	.60	1	12	3⅝	12	14¼
2815A	2.70	.70	1	15	3⅝	14	14½
29A	2.85	.50	2	9	4¼	11	16½
2912A	2.95	.60	2	12	4¼	13	16¾
2915A	3.05	.70	2	15	4¼	15	17
3012A	3.30	.60	4	12	5¼	12¼	20
3015A	3.40	.70	4	15	5¼	15¼	20¼

Eagle Extra Heavy Copperite Finish Steel Railroad Oilers



A solderless oiler for railroad and factory use. Has seamless welded steel reinforced insert type spout with large opening; reinforced handle welded to body; heavy precision rolled threads; vented filler cap; double seamed bottom.

Spouts are interchangeable.

Filler opening diameter, 1 inch.

Packed in shipping carton.

No.	Each	Extra Spouts Each	Cap. Pt.	Ht. over-all In.	Lgth. Spout In.	Diam. In.	No. in Carton	Wt. Lb. per Doz.
10	$2.50	$.85	1	16½	12	3⅝	36	10
101	2.70	.95	2	20⅝	15	4¼	24	13
11	2.80	1.05	2	23⅝	18	4¼	24	15
111	3.00	1.05	4	23¾	18	5¼	12	17½

No. 77 Eagle Mowing Machine Oilers

12-Ounce Capacity

Body is drawn from one piece of sheet metal. Furnished with either straight or bent spout.

Diameter, 3 inches; length of spout, 4 inches.

Packed 1 dozen in a carton; 1 gross in shipping container. Weight per gross, 45 pounds.

No. 77T, Plain Tinned	each	$.30
No. 77R, Red Enameled	each	.38
No. 77B, Blue Enameled	each	.38
No. 77G, Green Enameled	each	.38

Eagle Welded Steel Bench Oilers

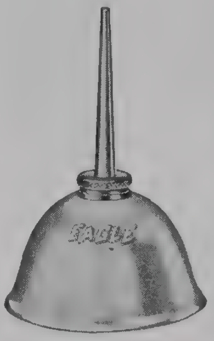
Re-Enforced Insert Type Spouts
All Sizes Interchangeable

For railroads, mills, mines, foundries, and general mill supply trade. One piece seamless high-grade steel body. Spring steel bottom electrically welded to body under electronic control. Body fitted with steel bushings. Spouts have knurled brass bushings, insure perfect fit.

Machine cut threads. Tested under air pressure.

Bent spouts furnished on 6 and 9-inch lengths unless otherwise specified.

Packed 12 in a carton.



Straight Spout

Bent Spout

No.	Each	Extra Spouts Each	Outside Diameter Inches	Trade Cap. Pints	Length Spout Inches	Ht. Top of Collar Inches	Height Overall Inches	Wt. Lb. per Doz. Packed
2004	$.95	$.60	3⅜	⅓	4	2 1/16	5¾	4½
2006	.98	.63	3⅜	⅓	6	2 1/16	7¾	4¾
2009	1.00	.65	3⅜	⅓	9	2 1/16	10½	5
3004	1.05	.60	3¾	½	4	2 5/16	6	4¾
3006	1.08	.63	3¾	½	6	2 5/16	7¾	5
3009	1.10	.65	3¾	½	9	2 5/16	10¾	5¼
4004	1.15	.60	4⅛	¾	4	2 7/16	6⅛	5⅜
4006	1.18	.63	4⅛	¾	6	2 7/16	8	5⅝
4009	1.20	.65	4⅛	¾	9	2 7/16	11	5⅞
5004	1.25	.60	4½	1	4	2 11/16	6⅜	6½
5006	1.28	.63	4½	1	6	2 11/16	8⅛	6¾
5009	1.30	.65	4½	1	9	2 11/16	11¼	7

Eagle Engineers' Fillers

Copperite Finish

Made from high grade cold rolled steel, double seamed bottom; threaded filler cap and filler opening, 1½-inch opening.

Spout seam is welded Spout and handle welded to body.

Packed 6 in a carton.

No.	19	19A	210	211
Each	$2.00	2.50	2.75	3.00
Capacity ... pints	1	1½	2	4
Diameter ... inches	4¼	5¼	5⅜	6⅜
Height Overall ... inches	4¼	6¼	6	6⅛
Spout Length ... inches	4⅜	6⅞	6⅞	6⅞
Diameter Spout Opening ... inches	¼	¼	¼	¼
Weight per Dozen ... pounds	5¾	10¾	12½	16

Clayton-Kerrick Cleaner Steam Cleaning Units

Capacity, 90 Gallons of Water per Hour
60 to 90 Pounds Working Pressure
¼ Hp., 110/120 Volts, 50 or 60 Cycles, 1-Phase, A.C.

Clayton
Cleaner

For medium duty cleaning of engines, car and truck chassis tractors, farm machinery, poultry, hog and dairy farm equipment, floors, walls, building exteriors, conveyors and processing machinery of all types.

Delivers 90 gallons of balanced vaporized cleaning solution per hour, at pressures from 60 to 90 pounds, as desired.

Heating coil, built with precision spacing of coil wound in helical pattern, provides high thermal efficiency; rapid build-up to working pressures from cold start.

Thermostatic fuel cut-off insures safety and prevents damage from excessive pressures or temperatures due to water failure.

Six-gallon capacity solution tank, sufficient for 4 hours of normal operation. Solution supply system includes compound mixer and soap-saver meter, insuring uniformly balanced solution at all times.

Trouble-free positive displacement pump. Fully insulated long life firebox. Simple operation and visual control.

Kerrick cleaning gun is insulated, fitted with swivel handle and standard round nozzle.

Furnished with 25-foot length of tested, heat-resistant cleaning hose; also 4½-foot length of acid-resistant hose for use in de-scaling coil. Additional 25 or 50 foot lengths, coupled or uncoupled are available.

Available with 220-volt, 50 or 60-cycle, single-phase motor no extra charge. D.C. motors furnished on special order only.

Height, 42 inches, mounted on legs or casters. Width, 18 inches. Length, 36 inches.

Approximate weight, 470 pounds.

Model C-OEP—Oil Fired—Portable

Completely self-contained in all-steel cabinet. Mounted on 6-inch steel wheels. Ideal for automobile dealers, fleet owners, motor repair shops, service stations and industrial plants. Fully automatic, pressure atomizing type burner system, high pressure fuel pump, electric ignition. Burns No. 2 fuel oil, distillate or kerosene, specific gravity 30 to 40 Six-gallon capacity fuel tank holds enough oil for 3 hours of normal operation. Furnished complete and ready for operation with 12-foot electric drop cord fitted with plug-in connection.

Model C-OEP................................each **$610.00**

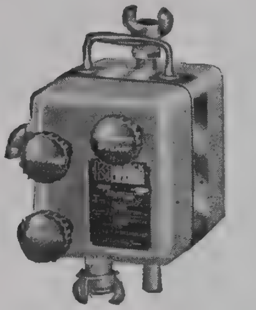
Model C-GES—Gas-Fired—Stationary

Same construction and appearance as Model C-OEP, except for burner assembly and leg mounts instead of casters. Forced draft burner with flame pilot, available for natural, artificial or mixed gas. Same solution output and pressure range as Model C-OEP. Operates on gas line delivering 270,000 Btu. per hour at constant 6-inch water column pressure.

Model C-GES................................each **$610.00**

When ordering specify Model, gas or oil fired stationary or portable mounting. If gas fired, specify Btu. content, pressure and specific gravity of gas and whether natural, artificial mixed or bottled in order that proper burner tip may be furnished. Specify voltage and cycle of motor.

Kerrick Hydro-Steam Kleaners



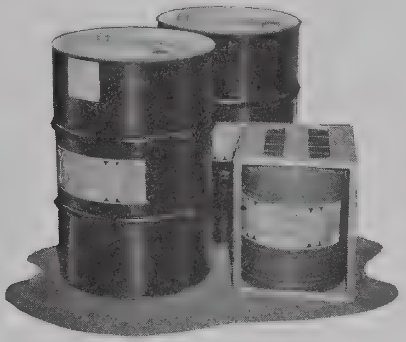
Steam operated cleaning machine which produces an atomized spray of cleaning solution to suit every type of cleaning job. Temperature and pressure of solution delivery may be varied.

Requirements for operation are as follows: steam line maintaining open press. of 60 lb. or more, with ¾-inch valved outlet; 50-gal. steel solution tank; suitable lgth. ¾-inch steam hose; and 180 gal. per hour water supply.

Standard equipment includes suction hose and strainer, special swivel-handle cleaning gun, one each round and fan nozzle and necessary quick couplings, union and hose connections to complete assembly. Ship. wt., 46 lbs.

Complete..................................each **$120.00**

Clayton-Kerrick Compounds



Vapor Cleaning Compounds

No. In 450-Lb. Container	No. In 125-Lb. Container	Compound	In 450-Lb. Container per Lb.	In 125-Lb. Container per Lb.
65450	65125	Kerlite (Light Duty).........	**$.19½**	**$.21**
66450	66125	Kermeed (Heavy Duty)......	**.18**	**.19**
67450	67125	Kerful (Extra Heavy Duty)..	**.20**	**.21**
68450	68125	Kaystrip (Paint Remover)...	**.20**	**.21**
69450	69125	Kerlum A (For Use Through Steam Cleaning Machines in Cleaning Aluminum and Soft Metals..................	**.19**	**.20**

No. In 400-Lb. Container	No. In 100-Lb. Container	Compound	In 400-Lb. Container per Lb.	In 100-Lb. Container per Lb.
70400	70100	Kerlum V (For Vat Cleaning of Aluminum and Soft Metals)....................	**$.19**	**$.20**

Wonderwash

No.	Description	Per Gallon
83006	Case of Six 1-Gallon Cans....................	**$1.87**
83005	5-Gallon Pail..............................	***7.75**
83050	50-Gallon Steel Drum......................	**1.10**

Solvents

Kermulso A

An emulsifying solvent.

No.	Description	Per Gallon
84006	Case of Six 1-Gallon Cans..................	**$2.45**
84005	5-Gallon Pail..............................	***11.00**
84050	50-Gallon Steel Drum......................	**1.75**

Karbonoff

A carbon remover.

No.	Description	Per Gallon
85006	Case of Six 1-Gallon Cans..................	**$3.35**
85005	5 Gallons in 5-Gallon Can...................	**14.00**
85004	4 Gallons in 5-Gallon Pail with Wire Basket..	**14.00**
85050	50-Gallon Steel Drum......................	**2.75**

Kleenkoil

A coil cleaner.

No.	Description	Per Gallon
80001	15/16-Gallon Bottle in Individual Container...	**†$3.25**
80013	12-Gallon Carboy..........................	**‡ 2.00**

*Per pail. †Per bottle. ‡Plus $15.00 deposit.

Lincoln Kleenseal Surface—Check Fittings

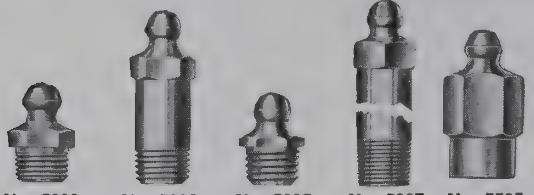
Bullneck Type

Used on automobiles, farm implements, trucks, tractors and industrial machinery. Ball in head of fitting seals out dirt and keeps grease in. Insures more volume and less resistance. Can be securely contracted by any commercial hydraulic coupler.

All fittings have spring and ball check unless otherwise stated in tables.

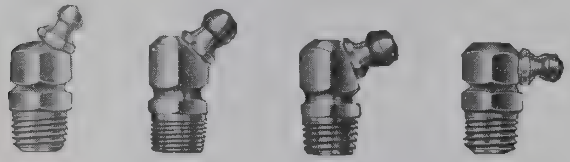
Hardened for additional protection from wear and damage.

⅛-Inch Pipe Thread Straight Fittings



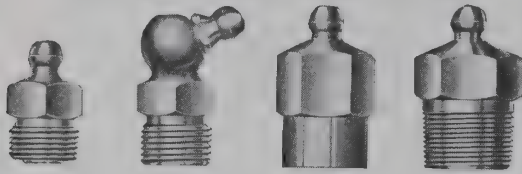
No.	Per 100	Description	Overall Length Inches
5000	$4.33	Straight	23/32
5003	12.79	Straight	1¼
5005	7.20	Straight	21/32
5007	14.20	Straight	1¾
*5009	18.39	Straight	2⅝
5505	11.41	Straight, Female Thread	1 3/32

⅛-Inch Pipe Thread Elbow Fittings



No.	Per 100	Description	Overall Length Inches
5100	$8.64	30° Elbow	1 3/32
*5107	23.99	30° Elbow	2 3/32
5200	8.64	45° Elbow	1 1/32
5300	8.64	67½° Elbow	29/32
*5308	14.39	67½° Elbow	1 3/16
*5309	23.99	67½° Elbow	2⅞
5400	8.64	90° Elbow	27/32

¼ and ⅜-Inch Pipe Thread Fittings



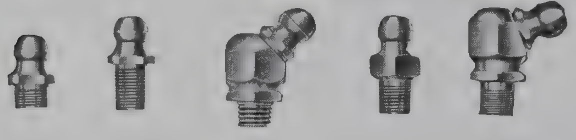
¼-Inch Pipe Thread

No.	Per 100	Description	Overall Length Inches
5050	$10.94	Straight	15/16
5350	14.66	67½° Elbow	1 5/32
5506	19.97	Straight, Female	1 3/16

⅜-Inch Pipe

No.	Per 100	Description	Overall Length Inches
5055	$23.99	Straight	1 3/16

¼″-28 and ¼″-32 Thread Fittings



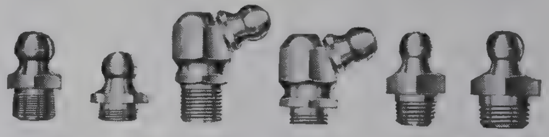
¼″-28 †Taper Thread

No.	Per 100	Description	Overall Length Inches
5010	$5.09	Straight, Short Thread	17/32
5013	6.63	Straight, Long Thread	11/16
*5014	8.00	Straight, Long Thread	15/16
*5042	4.50	Straight, Straight Thread	15/32
5210	10.19	45° Elbow, Short Thread	⅞
*5212	11.03	45° Elbow, Long Thread	1
*5410	11.41	90° Elbow, Short Thread	25/32
*5412	11.41	90° Elbow, Long Thread	13/16

¼″-32 Thread

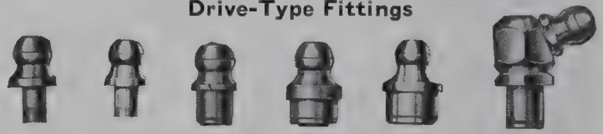
No.	Per 100	Description	Overall Length Inches
5016	$7.20	Straight	23/32
5316	11.99	67½° Elbow	27/32

5/16″-32, 5/16″-24, ⅜″-24 Thread Fittings



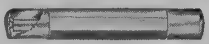
No.	Per 100	Description	Overall Length Inches
5060	$8.33	Straight, Long Thread 5/16″–32	⅝
5063	8.79	Straight, Short Thread 5/16″–32	½
5360	13.59	67½° Elbow, Long Thread 5/16″–32	27/32
5363	13.59	67½° Elbow, Short Thread 5/16″–32	23/32
5061	7.57	Ford Front Spring 5/16″–24	11/16
5062	7.57	Ford Rear Spring ⅜″–24	11/16

Drive-Type Fittings

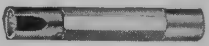


No.	Per 100	Description	Overall Lgth. In.	Drive Diam. In.
5012	$4.81	Straight, No Ball Check	19/32	5/32
5026	4.63	Straight, No Ball Check	19/32	3/16
5029	6.93	Straight	9/16	¼
5030	3.70	Straight, No Ball Check	9/16	5/16
*5031	4.63	Straight	19/32	5/16
5036	7.20	Straight	⅝	⅜
*5044	6.54	Straight, No Ball Check	37/64	¼
5318	11.99	67½° Elbow	⅞	¼
*5331	8.79	67½° Elbow	¾	5/16
*5385	11.21	67½° Elbow	13/16	3/16

Fitting Drive Tools

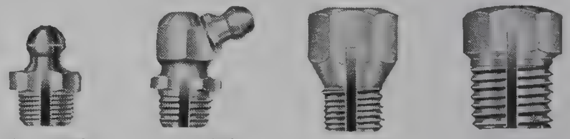


No. 11485. For installing straight drive fittings. Shipping weight, 5 oz.
No. **11485**..................each **$.70**



No. 11509. For installing angle drive fittings. Ship. wt., 6½ oz.
No. **11509**..................each **$.70**

Safety Vent Fittings and Bushings



⅛-Inch P.T. Male Fittings

No.	Per 100	Description	Overall Length Inches
5099	$8.79	Straight	23/32
5399	14.39	67½° Elbow	29/32

Bushings

For use where an extension fitting is required to contact bearing to properly vent it for escape of excess lubricant.

No.	Per 100	Description	Overall Length Inches
5580	$13.59	⅛″ P.T. Female to ⅛″ P.T. Male	¾
5581	15.39	⅛″ P.T. Female to ¼″ P.T. Male	¾

7/16″-12 Wood Screw Thread Fittings

No. 5065
No. 5365

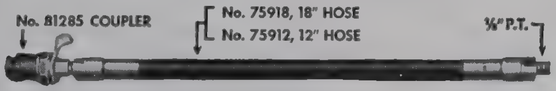
No. **5065**, Straight, Overall Lgth. 25/32 In......per 100 **$8.79**
No. **5365**, 67½° Elbow, Overall Lgth. 1 3/16 In..per 100 **18.39**

*Not illustrated. †Except as noted.

Lincoln Kleenseal Whip Hose Assemblies

10,000 Pounds Pressure—Flexible

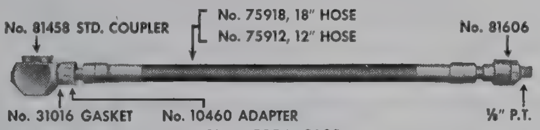
For Pin Type Fittings



Nos. 3040, 3041

No.	Each	Description	Ship. Wt. Oz.
3040	$3.00	12-Inch Hose with Pin Type Coupler One End, ⅛-In. Male P.T. Other End.....	9
3041	3.35	18-Inch Hose with Pin Type Coupler One End, ⅛-In. Male P.T. Other End.....	10½

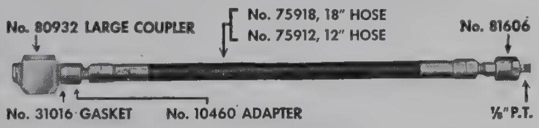
For Standard Button Head Fittings



Nos. 3034, 3033

No.	Each	Description	Ship. Wt. Oz.
3034	$5.90	12-Inch Hose with Std. Button Head Coupler One End, ⅛-Inch Male Swivel Connection Other End...............	13
3033	6.25	18-Inch Hose with Std. Button Head Coupler One End, ⅛-Inch Male Swivel Connection Other End...............	14½

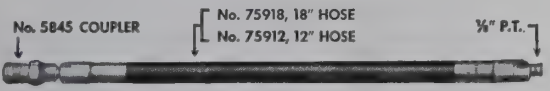
For Large Button Head Fittings



Nos. 3029, 3028

No.	Each	Description	Ship. Wt. Oz.
3029	$7.05	12-Inch Hose with Large Button Head Coupler One End, ⅛-Inch Male Swivel Connection Other End...............	16
3028	7.40	18-Inch Hose with Large Button Head Coupler One End, ⅛-Inch Male Swivel Connection Other End...............	17½

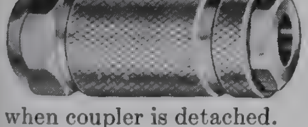
For Kleenseal or Hydraulic Fittings



81726	$2.65	12-Inch Hose with Hydraulic Coupler..	8½
81725	3.00	18-Inch Hose with Hydraulic Coupler..	10
75912	1.80	12-Inch Hose Center, ⅛-Inch Male P.T. Connections Both Ends.............	6½
75918	2.15	18-Inch Hose Center, ⅛-Inch Male P.T. Connections Both Ends.............	8

No. 815 Lincoln Flex-O-Matic Air Couplers

¼-Inch P.T. Female Inlet



Used for connecting an air hose to any air-operated device. Free swiveling action of coupler prevents kinking of hose. Automatic check-valve shuts off flow of air when coupler is detached.

No. **815**, Shipping Weight, 7 Ounces............each **$1.90**

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

No. 1264 Lincoln Kleenseal Volume Bucket Pumps

2000 Pound Maximum Pressure—30 Pound Capacity

For lubricating bearings equipped with large button head fittings on equipment as crawler-type tractors, bulldozers, etc. For fluid or semi-fluid lubricants.

Has check valve in the piston with laminated packing, oil and grease resistant for leakproof operation, and lubricant outlet in piston tube.

Lubricant output, .43 ounces per stroke.

Coupler furnished for large button head fittings. Container bonderized and finished in red baked enamel, pump handle in black. Overall dimensions: height 25 in.; width 14¼ in., with footstep; container diameter, 9 in. Ship. wt., 24 lb.

No. **1264** Complete with Hose Assembly No. 81168 ea. **$40.50**

Lincoln Kleenseal High Pressure Bucket Pumps

30-Pound Capacity Grease Gun— 3500-Pound Pressure

LINCOLN
Porto-Pak

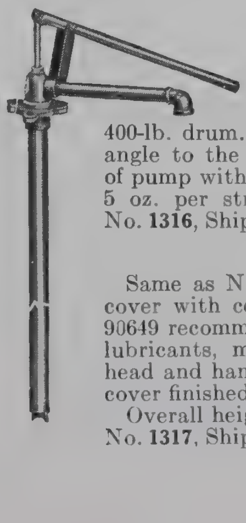
No. 1273D

Handles heavy and light lubricants. For lubricating machinery, farm implements, contractor's equipment, automobiles and trucks where high pressures are needed to lubricate close-fitting bearings. Spring-actuated check valve minimizes restriction to lubricant delivery. Linpak packing prevents leakage. Pump outlet ⅜-inch female pipe thread.

Follower plate furnished for use when pumping heavy lubricants to prevent channeling and loss of prime.

Container red; pump handle black baked enamel.

No.	Each	Hose Assembly No.	Hose Assembly Lgth. Ft.	Nozzle Furnished For	Ship. Wt. Lb.
1272	$27.90	.....	..	....	23
1273A	38.50	81767	5	Kleenseal & Hydraulic Fittings.......	26
1273C	39.75	81673	5	Standard Button Head Fittings.......	26
1273D	40.50	81768	7	Kleenseal & Hydraulic Fittings.......	27



Lincoln Kleenseal Heavy Duty Transfer Pumps

No. 1316

For lubricants and oils. Pump has 2-inch bung bushing to fit any 400-lb. drum. Pump handle is arranged at a 60° angle to the pump outlet, permitting operation of pump with drum placed against wall. Output, 5 oz. per stroke. Overall height, 46¾ inches.

No. **1316**, Ship. Wt., 34 Lb............each **$22.00**

No. 1317

Same as No. 1316 except equipped with drum cover with center opening. Follower Plate No. 90649 recommended for use when pumping heavy lubricants, must be ordered separately. Pump head and handle finished in black enamel. Drum cover finished in red baked enamel.

Overall height, 46¾ inches.

No. **1317**, Ship. Wt., 34 Lb............each **$30.00**

Lincoln Kleenseal Volume Bucket Pumps

30-Pound Capacity Grease Gun—2000 Pound Pressure

Designed for fast, clean service of button head fittings on equipment such as, crawler-type tractors, bulldozers, ditch diggers, road building and industrial machinery. All steel container, with built-in footstep, carrying handle and brackets for holding two hand guns. Pumps all types of fluid and semi-fluid lubricants.

Lubricant output, .43 ounces per stroke, or 17 ounces per minute using Tracroll lubricant through 5-feet 5-inch hose and large button head coupler at 70° F.

Overall dimensions: height, 28 inches; width, 14 inches; diameter of container, 9 inches. Shipping weight, 25 pounds.

Container rustproofed and finished in red baked enamel; pump head and handle in black.

No. 1264. Equipped with No. 81168 5-feet 5-inch hose assembly with No. 80932 large button head coupler for pull-on or push-on service of large button head fittings.

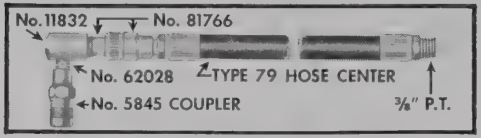
No. 1263 same as No. 1264 except without hose assembly. Pump outlet, ⅜ inch N.P.T. female.

No. 1264

No. **1263**	each **$27.55**
No. **1264**	each **40.00**

Lincoln Kleenseal Hose Assemblies

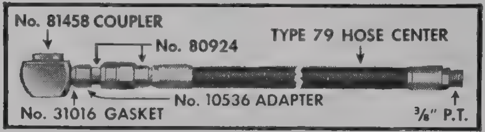
For High Pressure and Volume Bucket Pumps For Straight and Elbow Fittings



No. 81724

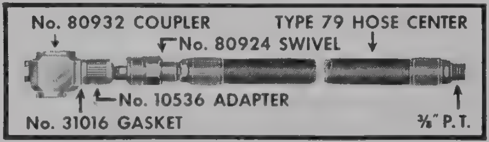
No.	Each	Description	Ship Wt. Lb
81767	**$10.60**	5-Foot Hose Assembly	2⅞
81768	**12.60**	7-Foot Hose Assembly	3⅞
81769	**15.60**	10-Foot Hose Assembly	5⅜

For Standard Button Head Fittings



81673	**$11.85**	5-Foot Hose Assembly	3¼
81702	**13.85**	7-Foot Hose Assembly	4¼

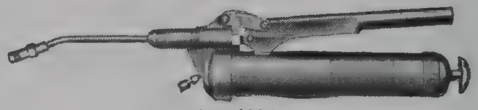
For Large Button Head Fittings



81168	**$13.00**	5-Foot Hose Assembly	4
81169	**15.00**	7-Foot Hose Assembly	5

Lincoln Heavy Duty Lever Grease Guns

Spring Primed—2⅜-Inch Barrel Diameter 19-Ounce Capacity



No. 1035

Provides a fast, clean method of lubricating machinery equipped with Kleenseal or hydraulic fittings.

Pin type or button head fittings may be contacted by using one of the whip hose assemblies.

Nos. 1034 and 1036 are furnished without nozzle; Nos. 1035 and 1037 with No. 5834 extension coupler for Kleenseal or hydraulic fittings.

Gun barrel is dull nickel finish.

High Pressure Type—10000 Pounds Maximum Pressure

No.		***1034**	**1035**
Each		**$15.55**	**16.80**
Overall Length	inches	18	25½
Shipping Weight	pounds	4¼	4½

Volume Type—3000 Pounds Maximum Pressure

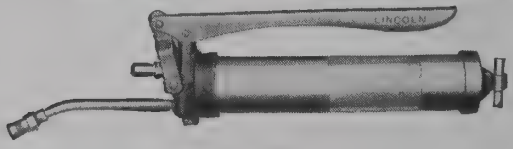
No.		***1036**	**1037**
Each		**$15.55**	**16.80**
Overall Length	inches	18	25½
Shipping Weight	pounds	4¼	4½

*Gun outlet is ⅛-inch pipe thread, female.

Lincoln Standard Lever Guns

2¼-Inch Barrel Diameter—15-Ounce Capacity

High Pressure Type—10000 Pounds Maximum Pressure



No. 1043B

Provides a fast and clean method of lubricating any machine or vehicle equipped with Kleenseal or hydraulic fittings. May be filled by suction and after filling the follower rod can be pushed back into the barrel.

Adapted to pin type or button head fittings by using one of the whip hose assemblies.

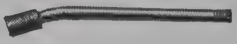
No. 1043 is furnished without nozzle. No. 1043B is furnished with No. 5834 extension coupler for Kleenseal or hydraulic fittings.

Barrel finished in dull nickel. Gun head is painted black.

No.		***1043**	**1043B**
Each		**$4.77**	**5.98**
Overall Length	inches	13¾	20¾
Shipping Weight	pounds	4¾	5

*Gun only without extension coupler; outlet ⅛-inch pipe thread, female.

No. 5833 Linpak Kleenseal Extension Nozzles



Includes No. 5804 Linpak nozzle and 6-inch steel extension tube. Has ⅛-inch male pipe thread connection.

Shipping weight, 4 ounces.

No. **5833** .... each **$1.02**

No. 5834 Lincoln Kleenseal Hydraulic Extension Couplers

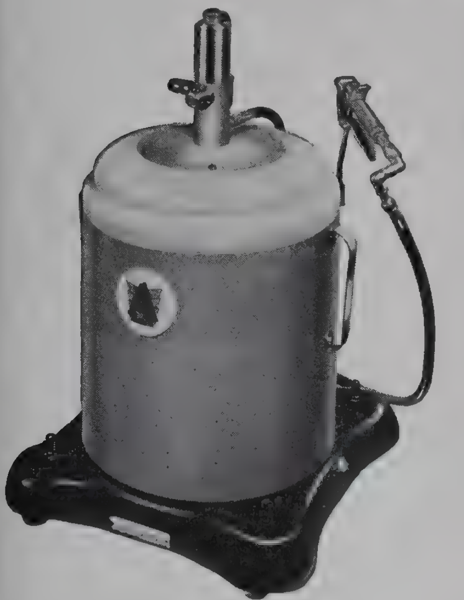
Includes No. 5845 hydraulic coupler and 6-inch steel extension tube. Has ⅛-inch male pipe thread connection.

Shipping weight, 4 ounces.

No. **5834** .... each **$1.20**

No. 711 Alemite Air Operated Pumps

Capacity, 25, 35 or 50 Pounds



Delivers 14½ ounces of chassis lubricant per minute at 70°F. with 150 pounds air pressure. Positive 40 to 1 ratio

Has powerful sealed-in air motor. Air motor piston rod made of stainless steel, hardened and polished. Case-hardened steel check valve seats. Center flow piston and cylinder.

Complete hose assembly: Z-type swivel, six feet of high pressure hose with 20,000-pound pressure test; control valve with adjustable single shot or continuous flow. (Hose assembly 4619-V). Pull handles.

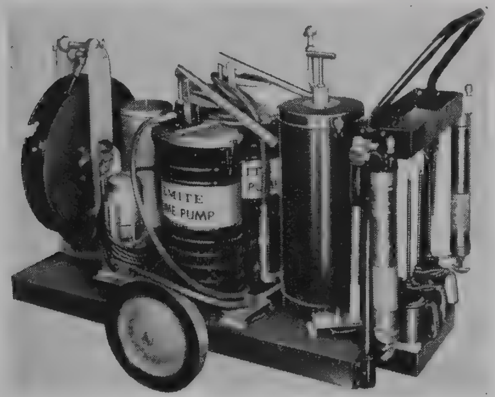
Overall height, 31¾ inches; base, 20½ inches square; diameter shield, 17 inches; lubricant outlet, ¼-inch pipe thread; air inlet, ⅛-inch pipe thread equipped with quick detach air coupler and connector.

Two-tone finish of white oven-baked enamel and simulated hammered aluminum; black baked enamel base. Base has protective fenders and 3-inch swivel Bassick casters; recessed for low center of gravity.

No. **711**, Shipping Weight, 68 Pounds.........each **$142.95**

No. 381040 Alemite Lubrikarts

For Electric, Air or Hand Operated Lubricating Equipment



Electric Lubrikart

Carries necessary equipment required for high pressure lubrication, filling hydraulic systems, servicing oil reservoirs, lubricating gear housings, refilling oil cans or refilling grease guns in a compact portable unit.

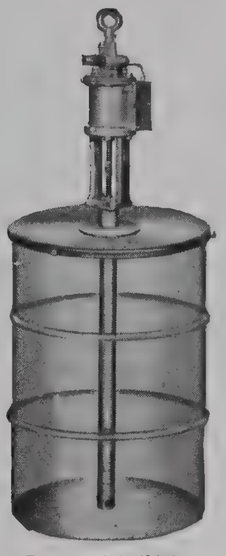
Has heavy steel base including two ball-bearing wheels with 12x2.00 semi-pneumatic tires, two 5-inch ball-bearing swivel casters, pushing handle, upper tray for adapters and tools, lower tray for three oil cans and hangers for two hand guns, either lever or push type.

Any desired assortment of lubrication equipment can be selected from the following: hand operated oil pumps; high pressure lubricant pumps; hose reel, hose stand and hose for power operated pumps; hand guns. Available accessories are as follows: oil can tray; pair of hold down clamps for attaching pump to truck; position lock for truck which is necessary for holding truck stationary when hose reel is used; clamp bracket for attaching various pumps to truck.

No. **381040**, Lubrikart Only...................each **$92.00**

Alemite Powerhouse Heavy Duty Air-Operated Barrel Pumps

For 400-Pound Drums



Pump with 4¼-In. Air Motor, Drum Cover

Pump with 6-In. Air-Motor, for Bung

Pilot-operated exhaust valves; pump delivers more lubricant per pound of air consumed. Air motor and pump separated; no seepage in air motor.

Lubricant pressure is from 5½ times to 80 times air pressure. Two types of air motors: 4¼-inch for normal air pressures; giant 6-inch for use where air pressures are low.

Mounting: bunghole types for screwing direct into 2-inch pipe thread bungs and cover types for full-open drums.

Height, 59½ inches. Weight: Pump with 4¼-inch air motor, 63 pounds; pump with 6-inch air motor, 80 pounds.

High Pressure Type. Handles light-bodied, viscous and fibrous greases and builds up to 8000 psi. lubricant pressures. Double-acting, pumping on both up and down stroke. Lubricant outlet, ½-inch female pipe thread. The 40 to 1 ratio pump delivers 10 pounds; 80 to 1 ratio pump delivers 7 pounds of pressure gun lubricant per min. through hose and control valve with 100 psi. air pressure.

Low Pressure Type. Handles light-bodied, semi-fluid and fluid lubricants. Delivery up to 36 pounds of S.A.E. 90 per min. Single-acting and double-acting models, available. Double-acting pumps for smooth non-pulsating delivery. Positive air elimination device built into priming chamber. Outlet, 1-inch female pipe thread.

With No. 317940 4¼-Inch Air Motor

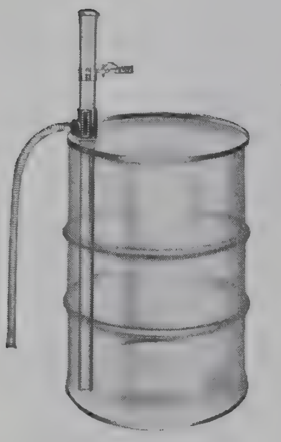
No.	Each	Pressure Ratio	Mounting on Drum	Piston and Tube Assembly No.
		High Pressure Type		
7700-B-1	**$339.90**	40 to 1	2″ P.T. for Bung..........	318004
7701-B-1	**354.90**	40 to 1	No. 318040 Cover.........	318004
		Low Pressure Type		
7700-J-1	**333.90**	11 to 1	2″ P.T. for Bung..........	318001, *318420
7701-J-1	**348.90**	11 to 1	No. 318040 Cover.........	318001, *318420
7700-F-1	**314.90**	5½ to 1	2″ P.T. for Bung.........	318001
7701-F-1	**329.90**	5½ to 1	No. 318040 Cover........	318001
		With No. 317960 6-Inch Air Motor		
		High Pressure Type		
7707-H-1	**$454.90**	80 to 1	No. 318040 Cover.........	318004
7708-H-1	**439.90**	80 to 1	2″ P.T. for Bung..........	318004
		Low Pressure Type		
7707-K-1	**448.90**	22 to 1	No. 318040 Cover.........	318001, *318420
7708-K-1	**433.90**	22 to 1	2″ P.T. for Bung..........	318001, *318420
7707-J-1	**429.90**	11 to 1	No. 318040 Cover.........	318001
7708-J-1	**414.90**	11 to 1	2″ P.T. for Bung..........	318001

*No. 318420 kit converts No. 318001 to a double-acting pump.

Powerhouse 120-lb. pumps, available; price on request.

Alemite Transfer Pumps

Air-Operated Transfers



No. 7216-A Lubricant Transfer

For high-speed fully controlled delivery of any fluid or semi-solid material, such as pressure gun grease, oil, paint, etc. Delivers 37 lb. of pressure gun grease or 14 gal. of SAE 10 oil per minute with 100-psi pressure.

For dispensing fluids, hose with control valve may be used if desired; double-acting air motor automatically starts when fluid control valve is opened, stops when control valve closed.

Synthetic rubber air piston requires no oiling. Separated design of air motor with two sets of packings prevents material being pumped from seeping into air motor. Three chevron packings with adjustable packing screw provides positive seal around rod. Adjustable adapter fits any drum, up to 400 lb. size, with 2-inch p.t. bung. Detachable air coupler permits use of air hose for other services. Valve at air inlet controls rate of delivery. Height, 52 inches.

No. **7216-A**, Weight, 15½ Pounds.............. each **$94.95**

No. 6479 Motor Oil Transfers

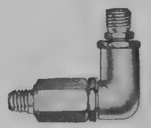
A heavy duty unit for use where it is often necessary to transfer oil from the original drum to another container. Empties a 54-gallon drum of S.A.E. 20 oil in 3 to 5 minutes. A shut-off valve is provided to control oil flow. Absolutely safe, as only 5 pounds of pressure enters drum, regardless of air pressure used. Fits in 2-inch pipe thread bung hole.

Equipped with 3-foot flexible tubing, and quick detachable coupling for air lines. Height, 50 inches.

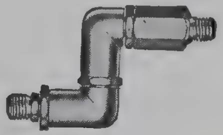
No. **6479**, Weight, 35 Pounds.................. each **$50.00**

Alemite High Pressure Swivels

Straight



90° Angle



Z-Type

Used with hose assemblies to permit easy handling of control valves and to prevent bending strains on the hose. Available in two types: ball bearing type, assures easy swiveling at all pressures, wearproof and leakproof; standard type, V-leather construction.

½-Inch, 27 Thread x ⅛-Inch P.T.

	Ball Bearing		Standard	
Description	No.	Each	No.	Each
Straight	53300	$1.90	47475	$1.40
90° Angle	53301	4.40	.....	....
Z-Type	53302	6.25	47464	4.65

½-Inch, 27 Thread x ¼-Inch P.T.

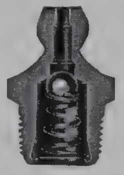
	Ball Bearing		Standard	
Description	No.	Each	No.	Each
Straight	52750	$1.90	47465	$1.40
90° Angle	52751	4.40	131572	3.30
Z-Type..	52752	6.25	.....	....

	⅛x⅛-Inch P.T.		⅜x½-Inch P.T.	
	Ball Bearing		Volume Type Ball Bearing	
Description	No.	Each	No.	Each
Straight	54730	$2.15	51541	$4.60
90° Angle	.....	....	51542	8.50
Z-Type	54732	6.85	51543	10.75

Alemite Hydraulic Fittings

Made of high grade steel, casehardened, and cadmium plated unless otherwise specified. Lubricated with either hydraulic or push type guns.

⅛-Inch Pipe Thread—Straight



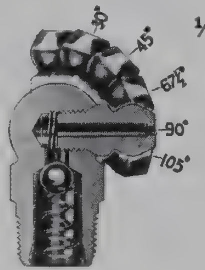
Cutaway View

No. 1610

No. 1618

No.	Description	Each
1607-B	1¼ Inches Long (Surface Check)............	$.17
1610	¾ Inch Long..................................	.06
1610-B	11/16 Inch Long, Ball Check at Top...........	.06
1618	1 7/64 Inches Long, Female Thread............	.15
1634	13/16 Inch Long, High Press. Oil Tight.........	.24
1644	21/32 Inch Long, Short Hex..................	.095
1650	29/32 Inch Long, Special Leakproof Seal......	.265
1669	1¾ Inches Long..........................	.19
1684	2⅝ Inches Long..........................	.28
1708	27/32 Inch Long, Leakproof..................	.49

⅛-Inch Pipe Thread—Angle



Angularity Drawing

No. 1611

No. 1613

No.	Description	Each
1606	90° Angle, 1 13/16 Inches Long................	$.26
1611	30° Angle, 1 1/64 Inches Long.................	.12
1612	67½° Angle, 53/64 Inch Long..................	.12
1613	90° Angle, 27/32 Inch Long....................	.12
1614-B	105° Angle, 1 1/16 Inches Long (Surface Check)	.16
1620	45° Angle, 1 5/16 Inches Long, Female Thread.	.32
1623-B	67½° Angle, 1 3/16 Inches Long (Surface Check)	.19
1638	30° Angle, 2⅛ Inches Long................	.32
1649	67½° Angle, 2¾ Inches Long..............	.315
1651	67½° Angle, 1 1/32 Inches Long, Leakproof Seal	.30
1688	45° Angle, 61/64 Inch Long...................	.12
1692	30° Angle, 1 5/32 Inches Long, Leakprcof Seal..	.32
1693	90° Angle, 15/16 Inch Long, Leakproof Seal...	.32

¼-Inch—28 Thread

No. 1636

No. 1641

No. 1652

No.	Description	Each
1636	45° Angle, 15/16 Inch Long....................	$.145
1637	45° Angle, 27/32 Inch Long....................	.13
1641	Straight, ½ Inch Long......................	.06
1652	Straight, 11/16 Inch Long.....................	.09
1680	Straight, 11/16 Inch Long.....................	.11
1698	Straight, 1⅛ Inches Long..................	.155
1703	Straight, ½ Inch Long......................	.07
1770-B	Straight, 33/64 Inch Long (Surface Check)....	.22
1792	Straight, 15/32 Inch Long.....................	.06
1911	90° Angle, ⅝ Inch Long....................	.15

¼-Inch—Pipe Thread

No. 1627-A

No. 1629

No.	Description	Each
1627-A	Straight. 59/64 Inch Long....................	$.15
1629-B	67½° Angle, 31/32 Inch Long (Surface Check).	.19

ALEMITE STOCKED IN FORT WAYNE ONLY

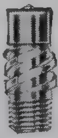
Alemite Standard Dot Fittings

Male Thread

Used on industrial machines. Positive attachment of Dot gun on fitting is accomplished by use of heavy threads on fitting onto which gun coupling is screwed. Positive lubricant seal is made, and high pressures can be developed without leakage.

No. 1461 Straight

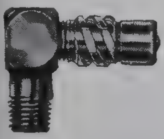
1/8-Inch Pipe Thread



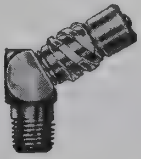
No.	Description	Each
1461	1 15/64 Inches Long	**$.26**

Elbow

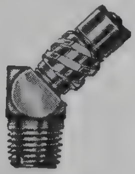
1/8-Inch Pipe Thread



No. 1463



No. 1465



No. 1464

No.	Description	Each
1463	90° Angle, 1 Inch Long	**$.46**
1464	60° Angle, 1 15/32 Inches Long	**.46**
1465	45° Angle, 1 19/32 Inches Long	**.46**

Fitting Wrench

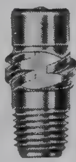
5112	Fitting Wrench to Fit Standard Dot Fittings	**$.50**

Alemite Mogul Dot Fittings

Male Thread
1/4-Inch Pipe Thread

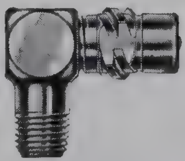
Heavy duty type Dot Fittings are known as Mogul Fittings. These fittings are larger and stronger than the Standard Dot Fittings and are designed for hard industrial service.

No. 1489 Straight



No.	Description	Each
1489	1 7/16 Inches Long	**$.60**

Elbow

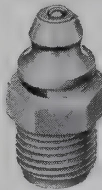


No. 1490

No.	Description	Each
1490	90° Angle, 1 11/32 Inches Long	**$.92**
1491	60° Angle, 1 11/16 Inches Long	**.92**

Alemite Lubriguard Fittings

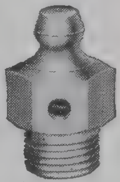
Fitting does not shut off: it bleeds excess lubricant by opening safety spring when excessive pressure is reached.



No. 1982

Size: 1/8-inch p.t.

Nos. 1982-A and 1982-B For use on wheel bearings, electric motor bearings, etc., to prevent seals and packings from destruction by even moderate pressure. Ball check at top keeps out foreign matter.



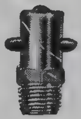
No. 1990

No. **1982-A**, Length, 55/64 Inch	each	**$.36**
No. **1982-B**, Length, 13/16 Inch	each	**.36**

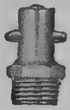
No. 1990. With restriction plug; prevents initial surge of lubricant pressure (from power gun) from entering bearing and causing damage to seals. Length, 29/32 inch.

No. **1990**	each	**$.225**

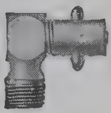
Alemite Pin Type Fittings



No. A-336



No. A-359



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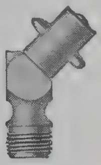


No. A-684

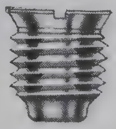
The original lubrication fitting developed by Alemite. The coupling locks positively on the pin of the fitting, making a leakproof seal under high pressure.

No.	A-336	*M-336	A-358	A-359	A-684
Each	**$.24**	**.43**	**.49**	**.49**	**.49**
Length inches	31/32	31/32	1	1 3/32	1 13/32
P.T. ... inches	1/8	1/8	1/8	1/4	1/8

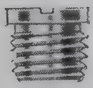
*Same as No. A-336 except non-corrosive.

Alemite Flush Type Fittings

No. Z-730-A



No. Z-741-A



No. 1815

No. 1817

No. 1452

No. 1853

No. 1814

Used on line shafting pulleys, or revolving bearings. Fittings set flush with the bearing surface and therefore cannot be easily damaged. Protruding fittings cannot be used in some installations as they would be broken off by revolving bearings. Nos. **1814** and **1817** are for lubrication with an ordinary oil can.

Drive Type

1/4-Inch Drive

Nos.	Description		
1853	11/32 Inch Long	each	**$.195**

5/16-Inch Drive

Z-730-A	15/32 Inch Long	each	**$.12**
1814	21/64 Inch Long	each	**.15**

3/8-Inch Drive

1817	11/32 Inch Long	each	**$.165**

Threaded Type

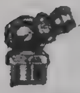
1/8-Inch Pipe Thread

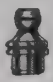
Nos.	Description		
1452	17/32 Inch Long	each	**$.17**
1815	23/64 Inch Long	each	**.195**

1/4-Inch Pipe Thread

Z-741-A	9/16 Inch Long	each	**$.22**

Alemite Drive Type Hydraulic Fittings

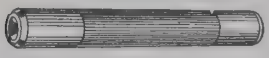

No. 1630

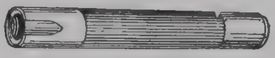

No. 1699

*No. 1952 resembles No. 1605 except that it is grooved.

No.	Description	Each
*1605	Str., ¼ In., ½ In. Long, No Ball Check	$.09
1608-B	Straight, 5/16 Inch, 9/16 Inch Long	.06
1624	30° Angle, 5/16 Inch, 37/64 Inch Long	.14
1630-B	67½° Angle, 5/16 Inch, ¾ Inch Long	.12
1633	Straight, 3/16 Inch, ⅝ Inch Long	.06
1646-B	67½° Angle, 3/16 Inch, 49/64 Inch Long	.15
1666	Str., ⅜ In., 37/64 In. Long, No Ball Check	.10
1699	Str., 5/16 In., ⅝ In. Long, No Ball Check	.05
1728-J	Straight, 3/16 Inch, 17/32 Inch Long	.085
1736	Str., ⅛ In., 9/16 In., Long, No Ball Check	.09
1743-B	Straight, ¼ Inch, 9/16 Inch Long	.09
1744-B	67½° Angle, ¼ Inch, 25/32 Inch Long	.16
*1952	Straight, ¼ Inch, 15/32 Inch Long	.09

Alemite Drive Tools for Hydraulic Fittings

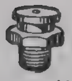

No. 5253


No. 6492

Hydraulic drive fittings are to be assembled to the bearing by means of one of these assembly tools.

No. 5253, for Straight Drive Fittings	each	$.60
No. 6492, for Angle Elbow Fittings Nos. 1630, 1646 and 1744	each	1.10

Alemite Button Head Fittings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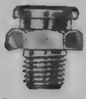
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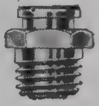
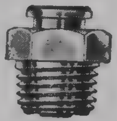
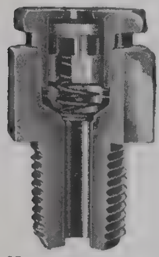

No. A-1188


No. A-1190

Designed to provide full flow of lubricant without restriction. For industrial applications.

⅛-Inch Pipe Thread		
*No. C-69, 29/32 Inch Long	each	$.20
No. A-1184, ¾ Inch Long	each	.16
¼-Inch Pipe Thread		
No. A-1186, ⅞ Inch Long	each	.18
No. 1401, 53/64 Inch Long, Volume Flow	each	.23
⅜-Inch Pipe Thread		
No. A-1188, 61/64 Inch Long	each	.23
No. 1396, 1 1/32 Inch Long, Volume Flow	each	.29
½-Inch Pipe Thread		
No. A-1190, 1 1/16 Inch Long	each	.35

*Female fitting; all others are male.



Alemite Giant Button Head Fittings

Free Flow Type

Used where hard service and volume delivery of lubricant is required. Made with hardened body, to withstand rough usage, yet when pressure is applied the fitting opens wide for volume flow of lubricant.

No.	Description	Each
	⅛-Inch Pipe Thread	
1831	1 5/32 Inches Long	$.42
	¼-Inch Pipe Thread	
1823	1¼ Inches Long	.41
1872-A	1 9/32 Inches Long (for Extremely High Pressures)	.79
	⅜-Inch Pipe Thread	
1822-A	1 5/16 Inches Long	.42
1825	2 Inches Long	.57
1871-A	1 11/32 Inches Long (for Extremely High Pressures)	.79
	½-Inch Pipe Thread	
1820	1 1/16 Inches Long	.45
1880	1 11/16 Inches Long (for Extremely High Pressures)	1.00
	⅝-Inch Thread	
1821	⅝-18 Thread. 1 5/16 Inches Long	.45

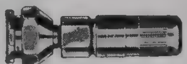
Alemite Giant Button Head Couplings

For use on service compressor hose. Commonly used with bucket pumps for lubrication of track roll bearings on crawler type tractors.

Connection, 7/16 inch—27 female thread.

No. 304300, Pull-On	each	$3.65
No. 304301, Hook-On	each	3.65
No. 304302, Push-On, 1⅜-In. Body	each	3.65
No. 309570, Push-On, 1¼-In. Body	each	3.40

Adapters for Use with Giant Button Head Couplings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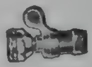
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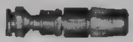
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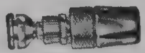
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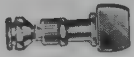
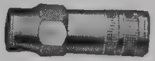
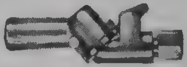

No. 6338

No. 6331, Giant B.H. to Hydraulic	each	$1.10
No. 6332, Giant B. H. to Pin	each	2.10
No. 6334, Giant B. H. to Mogul Dot	each	6.65
No. 6338, Giant B. H. to Standard Button Head	each	3.70

Alemite Hydraulic Couplings


No. 6304-B


No. 6509-C

No. 6304-B. Standard coupling used on the Nos. 7420 and 7421 control valve. Provides quick, positive, leakproof contact with hydraulic fittings. Wide range of angularity permitted without leakage. Grease pressure operates locking action of jaws, so that connection grows tighter as pressure is developed. Jaws reversible, ⅛-in. female P.T... each **$.90**

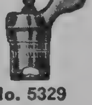
No. 6304-C. Same as No. 6304-B, except has ball check.
No. 6304-C............each **$1.00**

No. 6509-C. For engaging out-of-the-way fittings. Coupler swivels full 360° and locks in eight positions. Has ⅛-inch female P.T............each **$4.75**

No. 2604 Hydraulic Coupling Repair Kits

Repair kit for No. 6304-B and 6304-C hydraulic couplings. Contains 9 jaws, 2 sleeves, 2 nozzle bodies, 6 washers, 4 rubber packings, and 2 springs.
No. 2604............each **$1.55**

Alemite Adapters for Use with Hydraulic Couplings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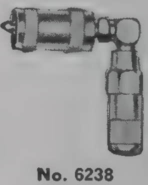
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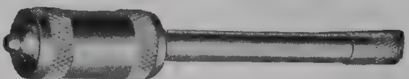
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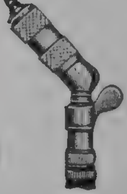
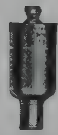

No. 6300-A

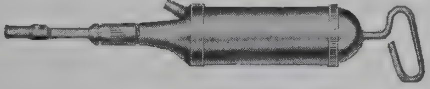

No. 6307-A

No. 5329, Hydraulic to Pin Type	each	$1.50
No. 6238, Hydraulic to Hydraulic; 90° Angle	each	2.25
No. 6239, Sm. Diam. Extension Adapter	each	2.25
No. 6300-A, Hydraulic to Pin Type; 45° Angle	each	3.25
No. 6307-A, Hydraulic to Push Type; with Locking Sleeve	each	1.25

Alemite Hand Guns for Hydraulic, Push Type and Flush Type Fittings

Handles all types of pressure gun lubricants. For easier lubrication of high and other hard-to-reach fittings, due to long narrow design and one-hand operation. Easily develops high pressure, up to 5,000 pounds. All wearing parts easily and economically replaced. Closely fitted steel high pressure piston, carefully ground and polished. Heavy gage steel lubricant cylinder withstands hard use. Smooth interior surface assures long life of high grade follower cup leathers. Follower assembly rigidly attached to follower rod positively forcing grease to high pressure chamber. Hydraulic coupling provides quick, positive, leakproof contact with hydraulic fittings.

Series 7553 and 7554



Capacity, 1¾ pounds. Approximate length, 20¾ inches. Approximate width, 5½ inches. The 7553 series equipped with No. 306740 loader fitting. Shipping weight, 5½ pounds.

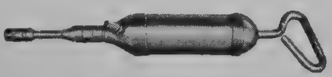
No. **7553**, Hydraulic Coupling	each	**$9.15**
No. **7553-Z**, Push Type Nozzle	each	**9.15**

Series 7556 and 7557

Capacity, 1 pound. Approximate length, 21 inches. Approximate width, 3⅞ inches. The 7556 series equipped with No. 306740 loader fitting. Shipping weight, 3¼ pounds.

No. **7556**, Hydraulic Coupling	each	**$7.15**
No. **7557**, Hydraulic Coupling	each	**6.80**
No. **7557-Z**, Push Type Nozzle	each	**6.80**

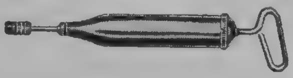
Series 7584 and 7585



Capacity, 9 ounces. Approximate length, 14¾ inches. Approximate width, 3⅞ inches. The 7584 series equipped with No. 306740 loader fitting. Shipping weight, 2¾ pounds.

No. **7584**, Hydraulic Coupling	each	**$4.65**
No. **7584-Z**, Push Type Nozzle	each	**4.65**
No. **7585**, Hydraulic Coupling	each	**4.30**
No. **7585-Z**, Push Type Nozzle	each	**4.30**
No. **7585-F**, Flush Type Nozzle	each	**4.30**

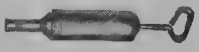
Series 6556



Capacity, 5 ounces. Approximate length, 15 inches. Approximate width, 3¾ inches. Shipping weight, 2⁄16 pounds.

No. **6556**, Hydraulic Coupling	each	**$3.20**
No. **6556-Z**, Push Type Nozzle	each	**3.20**
No. **6556-F**, Flush Type Nozzle	each	**3.20**

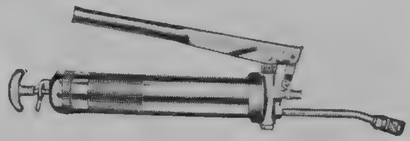
Series 6550 and Nos. 6570, 6587



Capacity, 3 ounces. Approximate length, 9¾ inches. Approximate width, 2⅜ inches. Shipping weight, 1³⁄16 pounds.

No. **6550**, Hydraulic Coupling, Vacuum Primed.	each	**$1.70**
No. **6550-Z**, Push Type Nozzle, Vacuum Primed.	each	**1.70**
No. **6570**, Hydraulic Coupling, Spring Primed...	each	**1.75**
No. **6587**, Hydraulic Coupling, Spring Primed (Can Be Loaded by Suction)	each	**2.00**

Series 1056 Alemite Lever Type Grease Guns



Develops pressures to 10,000 pounds. Capacity, 1 pound. Hardened steel piston machined and polished within minute tolerances. All parts precision fit. Knurled barreled. Long operating handle gives maximum leverage.

Loader fitting permits fast, clean filling, or gun may be filled by suction. Built-in ball check easily cleaned.

No. 6638 Pipe Extension has No. 6304-B Alemite hydraulic coupling for hydraulic grease fittings. Adapters for other types of fitting available.

Spring Primed

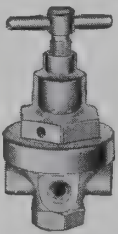
For pressure gun lubricants. Positive delivery assured by heavy priming spring behind neoprene follower. Follower rod disappears after filling.

Malleable iron head casting equipped with loader fitting. Outlet, ⅛ inch pipe thread.

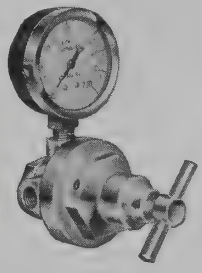
No. **1056-S** Gun Only, Length 16 Inches; Shipping Weight, 4¾ Pounds	each	**$9.45**
No. **1056-SE** Gun with No. 6638 Pipe Extension, Length 21½ Inches; Ship. Weight, 5⅛ Lb.	each	**10.45**

Alemite Air Regulators

Readily installed in air line to control the amount of air pressure. Prevents injury to equipment due to excess air pressures.



No. 300028



No. 300029

Easily adjusted to any desired pressure up to a 200-pound maximum.

Has a ¼-inch pipe thread inlet.

Has three ¼-inch pipe thread outlets.

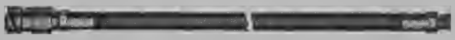
No. 300029 is furnished with a No. 300049, 200-pound gauge.

No. **300028**, Air Regulator Only	each	**$11.00**
No. **300029**, Regulator with 200-Pound Gauge	each	**13.95**

Alemite Hose for Lever Guns

Alemite hose for hand and foot operated pumps (service compressors) is made of oil resisting rubber. Withstands long hard use. Very flexible.

With Pin Type Coupling



No.	Each	End Conn. Pipe Thread, In.	Length Inches	I.D. Hose In.	Pressure Pounds
A-908-A	**$3.40**	⅛	13⅜	3⁄16	10,000
A-909-A	**3.75**	⅛	19⅜	3⁄16	10,000

With Standard Button Head Coupling

***7089**	**$5.35**	⅛	15½	3⁄16	10,000
†7087-A	**7.55**	⅛	17½	¼	20,000

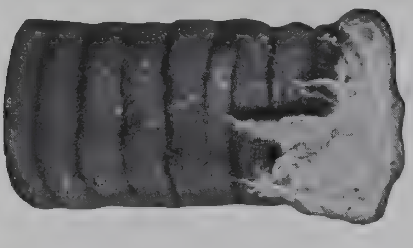
With Giant Button Head Coupling

6829-A	**$8.68**	¼	17½	¼	20,000
131443	**7.70**	¼	12½	¼	20,000

***When ordering** button head hose for lever guns without built-in check valve, specify No. 1189 instead of 7089.

†Heavy duty hose.

No. 1 Cotton Waste



Less than 50-pound bale takes 2 cents per pound advance over 100-pound bale.

Fifty-pound bale takes ½ cent per pound advance over 100-pound bale.

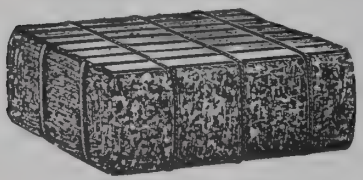
No. **1** White	per pound	....
No. **1** Colored	per pound	..

Wiping Rags

These rags are thoroughly washed and sterilized.

Selected White, in 50, 100 and 500 Lb. Bags	per lb.	....
Selected Colored, in 50, 100 and 500 Lb. Bags	per lb.	....

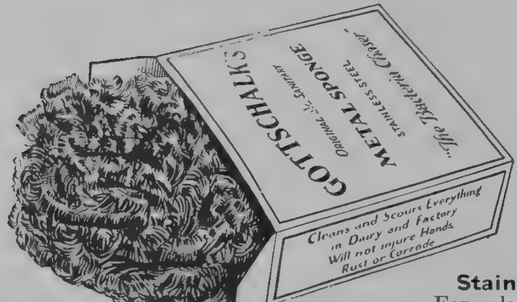
Excelsior



Fine cut. For use in packing and shipping departments, also in manufacture of upholstery work, mattresses, etc. In approximately 100-pound bales.

Per 100 Lbs...... ....

Gottschalk's Metal Sponge



Stainless Steel. For cleaning and scouring stainless steel equipment.

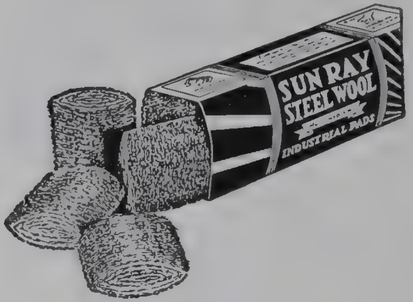
Special Bronze Alloy. For highly polished tinned, nickel and copper surfaces.

Bronze and Nickel. For industrial uses.

Packed individually in boxes; 12 in a carton.

	Stainless Steel		Special Bronze Alloy		Bronze & Nickel
No.	**740**	**775**	**520**	**540**	**850**
Each	**$.45**	**.80**	**.25**	**.45**	**.50**
Sponge Size	Jr.	Reg.	Jr.	Reg.	Reg.
Ship. Wt. per Ctn....lb.	2	2⅔	2	4	4

Sun Ray Steel Wool Layer-built Pads



These pads are layer-built; simply turn back used layer for a fresh new surface.

Painters, wood finishers, mechanics—all users of steel wool — find these large cushiony pads very convenient.

Available in 7 grades: Nos. 0000, 000, 00, 0, 1, 2 and 3.

Packed 16 pads to the package, 24 packages to the shipping case.

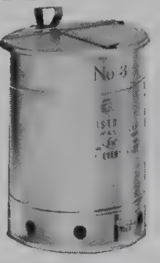
Prices upon application.

Justrite Oily Waste Cans

Listed by Underwriters' Laboratories

For safe handling of waste, rags and other inflammable materials. Carries Underwriters' label; listed by Factory Mutual Fire Insurance Companies.

Body of 24-gage galvanized sheet steel, cover of No. 22 gage. Handle of ⅛-inch band iron 1-inch wide.



With Foot Lever

With Foot Lever

No.	Each	Size Inches	Nom. Cap. Gal.	Ship. Wt. Lb.
9-1	**$11.00**	11¾x13	6	11
9-3	**12.00**	13½x15	10	14
9-5	**14.00**	15½x17	14	17
9-7	**24.00**	19 x20½	25	25
	Without Foot Lever			
9-1-A	**$10.00**	11¾x13	6	9
9-3-A	**11.00**	13½x15	10	12
9-7-A	**22.00**	19 x20½	25	23
9-9-A	**26.00**	22 x25	40	36

Justrite Safety Cans

½ and 1 Gallon

2, 3, and 5-Gallon with Screen

For using, handling and storing gasoline, benzine and other explosive or flammable liquids. Non-explosive. Approved, inspected and labelled by Underwriters' Laboratories and Factory Mutual Fire Insurance Companies.

Made of 24-gage steel, lead coated. Large nozzles, easy to fill. No-spill pouring lip. Balanced for easy carrying. Sizes 1-pint to 1-gallon with trigger handle; 2, 3 and 5 gallons with swinging handle. 5 gallon can may be filled directly from gasoline hose nozzle.

No.	**1000**	**1010**	**1020**	**1030**	**1040**	**1050**	**1060**
Without Screen..ea.	**$5.40**	**5.60**	**6.60**	**7.00**	**8.60**	**9.00**	**10.00**
Cap.............gal.	1-Pt.	1-Qt.	½	1	2	3	5
Diam............in.	4⅝	4⅝	7¼	7¼	9⅜	9⅜	11½
Ht...............in.	6¾	8¼	8⅜	11½	12⅝	16⅛	17
Ship. Wt.........lb.	2	2½	3	4	7	8	9

Baffle Screens

A non-flash-back baffle screen for use with safety cans. Easily removed or inserted. Made of two layers of wire mesh. Inner mesh of heavy wire covered by an outer layer of fine mesh wire. Held by special locking ring. Screens are not required by Underwriters'; required by Factory Mutual in 1, 2, 3 and 5-gallon sizes.

No. 1098 Screen—For 1 Pt. and 1 Qt. Cans	each	**$1.00**
No. 1099 Screen—For ½, 1, 2, 3 and 5 Gal. Cans	each	**.90**

Galvanized Oil Cans

With Spout

This can is made of heavy durable galvanized ware.

Has large spout, strong back handle and 1½-inch filler cap. Double seamed to the top. Provided with heavy wire bail with enameled wood handle.

Bright red band around top of can.

Furnished in one and five gallon capacity.

Capacity	gallons	1	5
Price	per dozen	.....	...

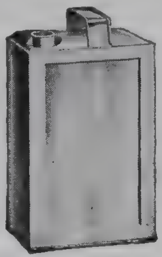
Round Tin Varnish Cans

With Screw Top

1 Pint	per dozen	.....
1 Quart	per dozen	.....
½ Gallon	per dozen	.....
1 Gallon	per dozen	.....

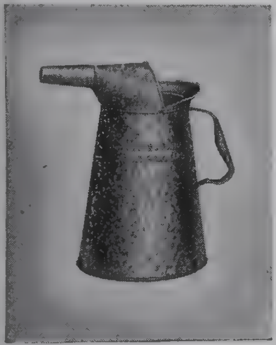
Square Tin Varnish Cans

With Screw Top



1 Pint	per dozen	.....
1 Quart	per dozen	.....
Nozzle for Cap or Cork		
½ Gallon	per dozen	.....
1 Gallon	per dozen	.....

Brookins Galvanized Combination Measures



Made of heavy gage steel, double seamed and hot dip galvanized after assembly.

Curved rigid spout.

No.	511	512	514
Each	$1.00	1.30	1.55
Capacity....qt.	1	2	4
No. in Ctn.	12	12	6
Ship. Wt. per Ctn....lb.	10	15	11

No. 553 Brookins Galvanized Funnels

Made with lock seams, of hot dip galvanized steel to resist rust and corrosion.

Equipped with strainer and baffle. Spout grooved for air venting

Capacity, 8 quarts. Size 11⅞-inch diameter.

Packed 3 in a carton.

Weight, 9 pounds.

No. 553 .... each **$2.91**

No. 714 Iron Horse Heavy Weight Pails

Capacity, 14 Quarts

Made of 24 gage steel. Hot dipped galvanized. Reinforced at top with extra heavy wire hoop.

Deep-drawn, raised bottom double-seamed-on.

Extra heavy wire bail; extra heavy, 2-riveted butterfly ears.

Diameter, 12¾ inches. Height, 10½ inches.

Approximate shipping weight per dozen, 64 pounds.

No. 714 .... per dozen ....

Iron Horse Water Pails

Made of 26-gage steel, hot dip galvanized after fabrication.

Reinforced at top with heavy wire hoop.

Deep drawn raised bottom, double seamed on.

Heavy wire bail and four riveted butterfly ears.

No.		3112	3114	3120
Capacity	quarts	12	14	20
Diameter	inches	12	12½	14¼
Height	inches	10	10½	10¾
Approx. Wt. per Doz	lb.	45	49	60

No. FSL-22 Iron Horse Heavy Galvanized Garbage Cans

Nestable Type

Made of 28-gage steel. Reinforced at top with heavy wire hoop and swedge. Corrugated sides. Deep drawn, raised bottom, double seamed on. Heavy drop handles securely riveted to body. One-piece deep cover, petal design.

Diameter 18½ inches. Height 23½ inches. Approximate capacity 22 gallons. Approximate shipping weight per dozen 148 pounds.

No. FSL-22 .... per dozen ......

Iron Horse 32 Gallon Garbage Cans

Heavy Weight—Nestable Type

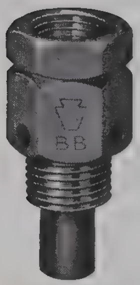
Built especially for hotels, factories, apartment houses and institutions.

Made of 26 gage galvanized steel. Reinforced at top with extra heavy wire hoop and swedge. Deep drawn, raised bottom, double-seamed-on. Heavy drop handles, securely riveted to body. One piece deep cover, petal design.

No.		FN32
Each		...
Capacity	gallons	32
Diameter	inches	20½
Height	inches	26¼
Approximate Shipping Weight per Dozen	pounds	212

Keystone BB Fittings

Re. Pat. No. 20743, Other Patents Pending

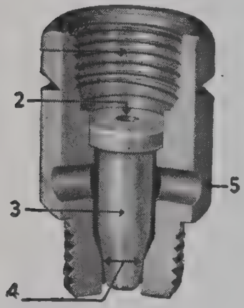


Nipple Type

Combination

Provides low pressure application of lubricant to ball and roller bearings. Attach directly to bearing housing. The integral ball head of the combination fitting is designed for direct contact with the nozzles of standard push type or hydraulic grease guns. The standard fitting accommodates any type pressure fitting or screw down grease cup.

The nipple fitting is for bearings requiring pipe nipples as used on enclosed electric motors, etc., and for use on bearings with internal passages with sufficient depth at grease inlet to accommodate the extended tubes.



Cut-Away View of Standard

Nipple fittings are calibrated for use on pipe nipples of 2, 4, 6, 8, 10, and 12-inch length.

Lubricant passes from pressure fitting through inlet (2) into hollow calibration tube (3) and then into bearing. When bearing has received proper amount of lubricant, any excess passes back through calibrated space (4) to escape ports (5) where it is visible.

Standard and Combination types are made in ⅛ and ¼-inch I.P. thread sizes. Nipples fittings are made in ⅛-inch I.P. thread only.

Keystone High Temperature Ball and Roller Bearing Grease

Nos. 44 and 45

KEYSTONE LUBRICATING COMPANY
KEYSTONE
GREASE
NO.44
BALL & ROLLER BRG.
PHILADELPHIA, PA. U.S.A.

Semi-solid densities having a melting point of approximately 350°F. and zero cold test.

For use in ball and solid roller bearings, in motors, fans, blowers, and other places where abnormal temperatures prevail. Will operate equally as well under normal temperature conditions. Can be used through pressure guns and fittings.

No. 45 is slightly softer than No. 44 and is preferred by some users.

Furnished in 1 and 7-pound cans, 25-pound pails, and in 100 and 400-pound steel drums.

Keystone Plain and Anti-Friction Bearing Greases

High temperature lubricant, free from fillers, abrasives, oxides, etc. Waterproof—salt or fresh water.

KEYSTONE LUBRICATING COMPANY
KEYSTONE
GREASE
No. 86LT
PHILADELPHIA, PA. U.S.A.

Densities: light, X light and XX light for automatic greasing equipment; light and medium for hand and hydraulic guns; heavy and X heavy for grease cups or screw guns. Operating range, 0 to 140°F.

No. 84. Used as an all purpose lubricant. Operating range, −40 to 225°F. Light density generally used for anti-friction bearings.

No. 86. Heavier body provides greater durability. Melting point, 390°F.; operating range, 0 to 250°F. X light density for general lubrication and medium or light for steam flow devices.

Available in 1, 7, 25, 100 and 400-pound containers.

Keystone Velox Grease

A black, water-resistant, adhesive grease.

Made in all densities corresponding to cup grease: No. 00, hardest, Nos. 0, 1, 2, 3, 4, Nos. 5 and 6 liquids. Operating range, 0 to 140°F.

Recommendations: Nos. 0 or 1 for water end of pumps. No. 3 for hydraulic plungers, elevator guide rails and ball and roller bearings under wet conditions at normal temperature. Nos. 2 or 3 for small open gears on printing and textile machinery if a less tenacious lubricant is desired.

Available in 1, 7, 25, 100 and 400-pound containers.

Prices upon application.

Keystone Nevastane Grease

A tasteless, odorless, white lubricant. Practically pharmaceutically pure. Used extensively on canning machinery. Applied to can covers in stack, its use increases the life of seamer rolls and minimizes adjustments.

Only a very light film, deposited on can covers, sufficient to lubricate outside edge of seamer roll and protect it against pitting and corrosion.

Creameries, dairies and powdered milk plants: Use extra heavy for stuffing boxes of skimmed milk pumps, sterilizers and homogenizers. Medium for pasteurizer valves. Cigar making: Use medium in pressure fittings; No. 6 light through felt on die rollers. Bakeries: Use medium on dividers, dough mixers, rollers and proofers. Breweries: No. 6 light for CO_2 compressors.

Put up in 1, 7, 25, 100 and 400-pound containers.

Prices upon application.

Keystone Specialized Cup Grease

KEYSTONE
GREASE
KEYSTONE LUBRICATING CO
PHILADELPHIA PA. U.S.A.

A high quality petroleum grease. Free from fillers, acids and free alkali and contains nothing whatever injurious to metal surfaces—uniform consistency at all times.

Its superior lubricating value assures longer service per pound used and greater protection to wearing surfaces. Made in various degrees of hardness to suit every condition and method of application.

Put up in 1, 7, 25, 100 and 400-pound containers.

Prices upon request.

Triple Extra Hard—No. 000

Double Extra Hard—No. 00

Very hard densities. For heavy bearing pressures. Used in screw down cups or applied direct to shaft in open slot bearings.

Extra Hard—No. 0

Recommended for lubricating all classes of heavy machinery whether journals are revolving at a high or low rate of speed.

Hard—No. 1

For engine and general machinery bearings.

Medium—No. 2

For air tool gear cases, engine governors, and wherever a Medium density cup grease is required.

Soft—No. 3

For line shafting lubrication in Venango gravity feed cups and is suitable for most plain bearings in this system of lubrication. Used in pressure guns.

Extra Soft—No. 4

Slightly softer than density soft and is used in gravity feed cups on bearings where a more rapid feed is required.

Keystone Extreme Pressure Transmission and Differential Lubricants

No. 73S
GREASE

Through careful selection of raw materials and exclusive processing methods, these products possess high film strength and excellent cushioning value. Recommended for industrial enclosed gears under specific conditions and automotive transmission and differentials (except hypoid).

Put up in 1, 7, 25, 100 and 400-pound containers.

No.	71S	71W	751	73S	73W	74
S.A.E. No.	250	250	160	140	90	80

Keystone All Purpose Hypoid Gear Lubricant

For hypoid gears in passenger cars and trucks. Put up in 1, 7, 25, 100 and 400-pound containers.

Keystone Wire Cable Treatment and Lubrication

KEYSTONE LUBRICATING COMPANY
KEYSTONE
GREASE
WIRE CABLE GREASE
PHILADELPHIA, PA. U.S.A.

Combination consists of use of Keystone Penetrating Oil No. 3 as a cleanser to remove from cable accumulations of dirt, residues and moisture, putting it into condition to receive an application of Keystone Wire Cable Grease.

No. 3 Penetrating Oil

Quickly dissolves foreign matter throughout cable giving it a new appearance. Has high lubricating value and is harmless to any metal surface. Pour point of minus 70°F.

Wire Cable Grease

High quality non-gumming petroleum lubricant with penetrative and protective properties. Free from tarry matter and low grade residues which dry out and glaze and eventually crack and peel. Highly resistant to water—fresh, salt or acid. Retains its efficiency in all atmospheric temperatures. Penetrates throughout the cable, saturating and preserving the core and protecting all internal and external wire surfaces against corrosion. Available in 1, 7, 25, 100 and 400 pound containers. Prices on application.

Densities and Applications

Made in semi-solid and liquid densities for various types of cables and methods of application.

Semi-solid densities: extra heavy, heavy, medium and soft. Liquid densities: medium, light, extra light, and XXX light.

Applications: A—air spray device; B—brush on at drum. D—drip cup or gravity tank; G—grease box; R—rotary pump lubricator.

Type Cable	Grease Density	Method
Vertical Hoist	Semi-solid; Medium	B or G
Tramway	Liquid, Medium	A or B
Track Rope	*Liquid, Light or Extra Light	R
Traction Rope	*Liquid, Light or Extra Light	D
Slope Shaft	Liquid, XXX Light	A or D
Drag Lines	No. 3 Penetrating Oil or	A or D
Slusher Cables	Liquid, XXX Light	A or D

*Above zero °F. use light; below zero use extra light.

Liquid XXX Light has ample body to lubricate and protect. It is not of a tacky type; does not pick up surface dirt when used on drag lines, like ordinary cable coatings.

For cleansing apply No. 3 Penetrating Oil with brush, drip cup, rotary pump lubricator or air spray device. Wire Cable Grease is applied cold in natural state and should never be heated.

Quantities Required

Approximate quantities of wire cable grease required for field application, per 1000 feet of cable run as follows:

¾-Inch diameter, 13 lb.
1 -Inch diameter, 17 lb.
1¼-Inch diameter, 22 lb.
1½-Inch diameter, 27 lb.
1¾-Inch diameter, 33 lb.
2 -Inch diameter, 40 lb.

From 3 to 5 gallons No. 3 Penetrating Oil per 1000 feet is usually sufficient, depending upon condition of cable.

Keystone SR Lubricant

For speed reducers, gearmotors and enclosed gears. Made in a range of viscosities to suit all conditions of speed and load.

Outstanding features: Low operating temperature, minimum power consumption; freedom from expansion, sustained load carrying capacity at operating temperatures, a stability which assures long service life and minimum make up requirements.

The various densities with respective viscosities are:

SR No. 0—SAE No. 70
SR No. 1—SAE No. 60
SR No. 2—SAE No. 50
SR No. 3—SAE No. 40
SR No. 4—SAE No. 30
SR No. 5—SAE No. 20
SR No. 6—SAE No. 10

Put up in 1, 7, 25, 100 and 400-pound containers.

Prices upon application.

No. 50 Keystone Condensed Oils

KEYSTONE LUBRICATING COMPANY
KEYSTONE
CONDENSED OIL
LIGHT
PHILADELPHIA, PA. U.S.A.

A liquid grease, made from a combination of high grade paraffin base petroleum oils and selected grease film materials. Used in plain and ring oil bearings; in air compressors in normal service.

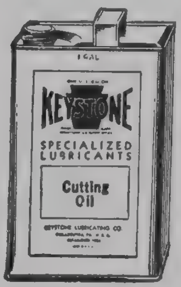
Provides safe, adequate lubrication, protects bearings against undue wear and reduces friction load to lowest possible degree. Dripless, creepless character prevents saturation of electric motor windings and oil damage to goods and to adjacent floor surfaces. Suitable for temperatures up to 225°F. under dry and moist conditions. Will not sludge or oxidize. Has high load carrying capacity. Water resistant.

Densities: XX Heavy, X Heavy, Heavy, Medium, Light, X Light, XX Light. In 7, 25, 100, 400-lb. containers.

Keystone Cutting Oil

Keycut Soluble

Employed in operations for which a moderate lubricating capacity is sufficient. Mixed with water, Keycut will not separate; is neutral; contains no free acid or alkali. Will not injure the hands and possesses no offensive odor; will not rust. For automatics and general machining practice, used with from 10 to 35 parts water according to types of metal and operation. Used for grinding all classes of metal; mixed with 50 parts water. To be used in conjunction with Keystone Soluble Grinding Powder.



Put up in 1, 5, 15, 30 and 55-gallon containers.

No. 109 Transparent Soluble

Used for same operations as Keycut, if a transparent emulsion is required.

Put up in 1, 5, 15, 30 and 55-gallon containers.

No. 101 Sulpho-Chlorinated

A petroleum oil which replaces lard oil and conventional sulphur base fatty oils. Has a high percentage of added sulphur chemically combined. The chlorine feature improves finish and increases tool life.

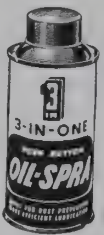
Free from objectionable odors. Does not become rancid in service or in storage. A safe oil to use because it is sterile, will not grow bacteria, will not harm or irritate the skin.

Will not gum up the tools or the machines. Used for automatic screw machines and general machining practice including drilling, threading, milling, boring, planing, etc. The straight oil is for stainless, alloy and high carbon steels, while for metals of easier machinability, mixtures of three to twenty parts of blending oil to one part No. 101 may be used. Also for use in thread grinding in all metals.

Put up in 1, 5, 15, 30 and 55-gallon containers.

Prices upon Application

3-In-One Oil


3-IN-ONE
OIL-SPRA

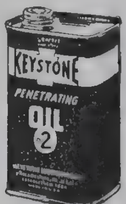
A blend of fine oils, scientifically compounded for oiling light mechanism, preventing rust on metal, cleaning and polishing.

Used on sewing machines, door locks and hinges, electric motors, etc.

*Gallon.

No.	Each	Size Can Oz.	Doz. per Case	Wt. Lb. per Case	No.	Each	Size Can Oz.	Doz. per Case	Wt. Lb. per Case
Regular Type									
390	**$.10**	1	3	4½	**391**	**$.25**	3	1	3½
8719	**.10**	1	1	1½	**8727**	**.50**	8	1	8
8720	**.25**	3	3	10	**8723**	**4.50**	*1	½	50
Heavy Body Type									
1890	**$.10**	1	3	4½	**8738**	**$.25**	3	3	10½
Oil Spray Type									
8756	**$.75**	6	1	7	....	....	.	...	....

Keystone Penetrating Oils


KEYSTONE
PENETRATING
OIL
2

No. 1.—A rapid penetrant and rust solvent. Has a film body to lubricate and protect threads being disengaged.

No. 2.—A practical, all-purpose oil used as an additive to engine lubricating oil and fuel, for the purpose of dissolving existing gum and preventing future accumulations. Has more lubricating and less penetrating qualities than No. 1.

Put up in 1-pint, 1, 5, 15, 30 and 55-gallon containers.

Prices upon application.

Rust-Lick B Water-Soluble Rust-Preventive Compound

A crystal clear blue liquid, compounded with corrosion inhibitors, antioxidants, amines and ethylene oxide condensates. Solubility is complete in hard or soft water. Produces a clear, colorless solution, odorless, non-irritating to the skin, non-foaming, not subject to bacterial decomposition. An effective rust-inhibitor for cast iron and steel when added to water; leaves a non-oily and dry microscopic film. Used as a grinding coolant for elimination of rancidity, rust and stain between operations; 1-pint added per 50 gallons of water; also for cleaning, washing or tumbling iron or steel parts; hydrostatic testing, etc. Weight, 10 lb. per gallon.

1-Gal. Can Only...per lb. **$.75** **5**-Gal Pail....per lb. **$.60**
Six **1**-Gal. Cans...per lb. **.60** **55**-Gal. Drum..per lb. **.50**

ThredKut Pipe-Threading Oil

Stuart's
ThredKuT
THE GREATEST DEVELOPMENT IN HEAVY DUTY CUTTING OIL

For power machines or hand dies. Flows freely at unusually low temperatures. Never burns out. Free from objectionable odor. Completely sterile. Will not deteriorate.

Supplied in convenient container sizes from 1-pint cans to 55 gallon drums.

Prices upon application.

Plumber's Lard Oil

Stuart's
PLUMBER'S
LARD OIL
FOR LUBRICATING HAND OR POWER THREAD CUTTING DIES
D.A.Stuart Oil Co.

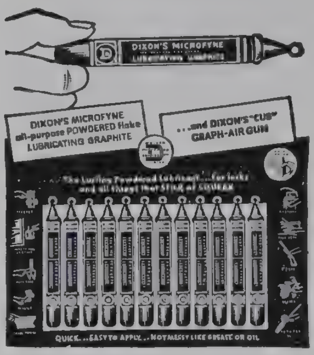
Materially assists in cutting perfect threads. Transparent and free from objectionable odor. Will not solidify on cold days.

Supplied in convenient container sizes from 1-pint cans to 55-gallon drums.

Prices upon application.

Dixon's Cub Graph-Air Guns

Graphite Powder Lubricators


DIXON'S MICROFYNE
DIXON'S MICROFYNE all-purpose POWDERED flake LUBRICATING GRAPHITE
...and DIXON'S "CUB" GRAPH-AIR GUN
QUICK...EASY TO APPLY...NOT MESSY LIKE GREASE OR OIL

For lock lubrication and squeak and friction killing jobs. Just squeeze to eject the graphite.

Filled with Microfyne flake lubricating graphite.

Diameter, 9/16 inch; overall length, 5½ inches.

Packing—"A" carding, 12 guns on 1 display card, 1 card in a box; "B" carding, 1 gun on 1 display card, 12 cards in a box.

Each.. **$.25**

Dixon Microfyne Graphojet

DIXON'S
Microfyne
GRAPHITE
A UNIVERSAL DRY LUBRICANT
JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY NEW JERSEY

For dry film lubrication of all types of metal, wood, leather, fabric and plastic surfaces.

Used by mechanics, locksmiths, maintenance men and hobbyists.

A durable polyethylene container filled with 3 ounces of lubricating flake graphite.

Available in cases of 36, packed in 3 inner reshippable cartons of 12 each. Approximate shipping weight per case, 12 pounds.

Each.. **$1.25**

Dixon's General Purpose Microfyne Lubricating Flake Graphite

Extra Finely Powdered Flakes

DIXON'S
MICROFYNE
LUBRICATING
FLAKE
GRAPHITE
JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N.J., U.S.A.

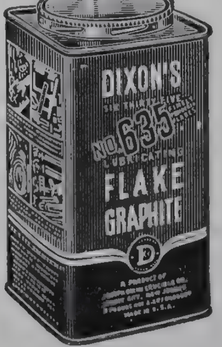
For all general lubrication and other purposes. Small size particles.

For ordinary and special lubrication of close fittings and tolerances, use dry or add to lubricating oils, greases and other substances.

Size Container	Per Pound
½-Lb. Canister	***$1.35**
1-Lb. Canister	**1.65**
5-Lb. Canister	**1.55**
25-Lb. Drum	**1.20**
50-Lb. Drum	**1.15**
100-Lb. Drum	**1.10**
200-Lb. Drum	**1.00**

*Per can.

No. 635 Dixon's Lubricating Flake Graphite


DIXON'S
NO. 635
LUBRICATING
FLAKE
GRAPHITE

Used dry or as a lubricating additive in oils, greases and other substances for long lasting lubrication. Extremely pure, unctuous, and in particle size is about 4 times smaller than Ticonderoga Graphite No. 2. Processed specially for services requiring minute, but not microscopic particle size.

Size Container Lb.	Per Lb.	No. Per Case
1	**$1.65**	36
5	**1.55**	8
25	**1.20**	..
50	**1.15**	..
100	**1.10**	..
200	**1.00**	..

Dixon's Ticonderoga Flake Lubricating Graphite

DIXON'S
FLAKE
GRAPHITE

Used dry or as a lubricating additive in oils, greases and other substances for long lasting lubrication, and as a lubricant and parting on pipe joints, gaskets and packings.

Furnished in particle size No. 1 in large flakes; or No. 2 in medium powdered flakes.

When ordering, specify size.

The 25, 50, 100 and 200-pound quantities furnished in drums, all other sizes in cans.

Size Container.......lb.	1	5	25	50	100	200
Per Pound..............	$1.35	1.25	1.00	.90	.85	.80

Dixon's Cup and Pressure Gun Graphited Greases

DIXON'S
GRAPHITE
CUP GREASE
No.3
JOSEPH DIXON CRUCIBLE COMPANY

Water insoluble. Retains original consistency over wide temperature range.

Does not need to be replaced as frequently as plain grease, and is therefore more economical.

Available in 6 consistencies: Nos. 0, 1, 2, 3, 4 and 5. **When ordering,** specify consistency.

Nos. 3 and 5 are for general use. No. 0 is about consistency of heavy oil; No. 5 about consistency of soft tallow.

Size Container................pounds	1	10	25	50
Per Pound..........................	$.70	.50	.45	.40
No. per Case........................	36	6	...	...

In larger containers, prices upon application.

Dixon's Lathe Center Graphite Lubricant

DIXON'S
LATHE
CENTER
GRAPHITE
LUBRICANT

Lubricants for lathe dead centers are subjected to the severest conditions of pressure and heat.

This product possesses an almost super film strength, minimizing overheating, wearing and scoring of dead centers, steady and follower rests and jack screws. Superior to white lead.

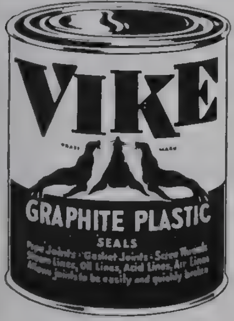
Also widely used in many other lubricating services requiring its pressure-resisting film strength.

Size Tube.................ounces	1	4	8
Per Tube..........................	$.30	.45	.85

Also in larger containers.

Keystone Vike Graphite Plastic

Dependable seal for all types of pipe joints, screw threads, gasket joints, flanges, etc., on petroleum lines (hot or cold), steam lines (high and low pressure, coal tar, vapor, and air lines. Insoluble in petroleum and its products, hot or cold. High co-efficient of expansion. Suited for high temperature service.



Contains no corrosive substances—litharge or etching materials.

Any item sealed can be disassembled without any damage to threads, gaskets, or equipment.

Vike Waterseal. Specify for water (hot or cold), steam, gas, air or ammonia lines.

Available in 1 and 10-pound cans, 30-pound pails, 100-pound kegs and 400-pound drums.

Key Graphite Paste

Listed by Underwriters' Laboratories

KEY
KEY
GRAPHITE PASTE

Soluble only in water. Used to seal steam lines, screw thread and gasket joints, cylinder heads, turbines, engines, pumps and valves, etc. Tight seal is easy to open. Leakproof against oils, gasoline, acids, gases, etc. Heat causes graphite paste to expand into joints or defects and thus absolutely prevent leakage. Will not corrode or oxidize in joint. Thin with water and apply with brush; ready for use; will not spoil or harden in can.

Description	Each	No. Cans in Case	Net Wt., Lb. per Case
¼-Lb. Cans......................	$.35	144	36
*Handy Dope Kit.................	.70	48	30
1-Lb. Cans......................	.90	24	24
2¾-Lb. Cans.....................	2.00	12	33
5-Lb. Cans......................	3.25	12	60
10-Lb. Cans.....................	5.50	6	60
30-Lb. Buckets..................	13.50	...	..
60-Lb. Buckets..................	21.00	...	..
500-Lb. Barrels..........................per pound			$.19

*Contains ⅝ lb., net contents. Screw-top lid, brush attached.

Key-Tite Waterproof Pipe Joint Compound

KEY-TITE
WATERPROOF
PIPE JOINT
COMPOUND

Key-Tite Pipe Joint Compound will effectively seal screw thread and gasket joints for such service as gas, water, steam, compressed air, etc.

It is not a quick hardening cement, but a plastic lubricant and filler that will seal the most obstinate joint with ease.

Covers more surface than lead mixtures and is more economical.

Description	Each	No. Cans in Case	Net Wt. Lb., Per Case
⅛-Pint Can........................	$.25	144	27
½-Pint Can........................	.45	48	36
*Handy Dope Kits..................	.55	48	36
1-Pint Can........................	.70	24	36
1-Quart Can.......................	1.20	12	36
½-Gallon Can......................	2.00	12	72
1-Gallon Can......................	3.60	6	72
5-Gallon Pail.....................	15.20	...	60
500-Pound Drum ....per pound	.22	...	..

*Contains ½ pint, net contents. Has screw-top lid with brush attached.

Tyte-Unyte Pipe-Joint Cement

TYTE-UNYTE
J. C. WHITLAM MFG. CO.

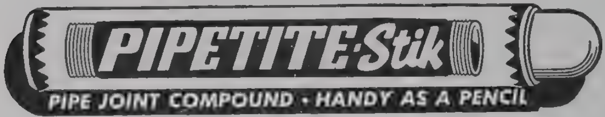
A perfect compound for use on screw joints, for putting together radiators, boilers, water, steam, natural gas and air pipe fittings. Put up in cans that are easily closed and opened. Never dries up nor becomes hard in either can or joints; seals perfectly. Furnished in silver-gray color.

	Tube	Can				Drum	
Size Container....lb.	*2¼	1	5	10	50	200	700
Per Pound...........	†$.20	.43	.41	.40	.38	.36	.35

*Ounces. †Per tube.

Pipetite-Stik

Pipe Joint Compound in Stick Form


PIPETITE-Stik
PIPE JOINT COMPOUND · HANDY AS A PENCIL

A quick, clean and permanent pipe joint sealer for all types of metal and plastic threads. Provides positive seal for gasoline, oil, freon, butane, propane, air, gas, acid, brine, water and steam. Ready for instant use; won't dry out; handy and convenient to use. Withstands vibration, temperature changes, deflection and pressure. Prevents rusting. Increases thread life.

Pipetite-Stik spreads and fills threads when turned.

Packed 1 dozen to a box, 3 dozen to a display carton.

Weight per gross, 15 pounds.

Per Dozen	$1.65
Per Carton of 3 Dozen	3.95

Permatex Form-A-Gasket

PERMATEX
1
FORM-A-GASKET

No. 1. Fast drying and hard setting. Used principally for making permanent assemblies, for building up uneven or warped surfaces and for the repair of broken parts. Makes unions leakproof to gasoline, gasoline vapor, kerosene, hot or cold oil, grease, and water. Resists high pressure and great strain.

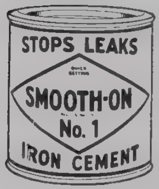
No. 2. Dries slowly and remains pliable. Used for general assembling work. It makes leakproof, pressure-tight unions but disassembles very easily. Preserves all types of solid gaskets from heaviest copper to thinnest cork.

PERMATEX
2
FORM-A-GASKET

	Tubes			Cans		
Size Container.	1½-Oz.	3-Oz.	11-Oz.	1-Pt.	1-Qt.	1-Gal.
Each	$.35	.50	1.20	1.65	2.75	8.75
No. in Case	72	72	36	24	12	6
Weight. pounds	*1½	*3	*11	1⁹⁄₁₆	3⅛	12½

*Weight is given in ounces.

Smooth-On Iron Cement



Used by mixing with water. For repairing breaks in castings, making tight joints and seams, and stopping leaks in boilers, pipe lines, pressure containers, etc. Becomes hard as iron when metallized, and expands at the same rate. May be used on iron, brass, steel, copper, lead, aluminum, etc., either alone or as a filling compound under a plate, and will withstand fire, water, steam, air, and high pressures. Sold in powder form.

No. 1, Quick-Hardening Iron Cement for General Repairs

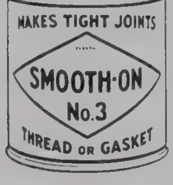
Size Can……pounds	*1¾	½	1	5	20	†100
Per Can	$.16	.40	.65	2.75	8.00	30.00

No. 2, Slow-Hardening Industrial Iron Cement

Size Can……pounds	1	5	20	†100
Per Can	$.65	2.75	8.00	30.00

*Ounces. †Keg.

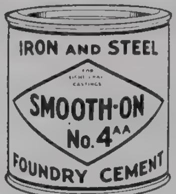
No. 3 Smooth-On Iron Cement



In paste form. For making screw-thread joints, coating gaskets, and sealing rivets, seams and joints in boilers, etc. Lubricates in assembling screw threads.

1-Pound Container	each	$.65
5-Pound Container	each	2.75
25-Pound Container	each	10.00

Smooth-On Foundry Cement



Used to fill all surface blemishes in iron and steel castings, or to cover recessed bolt heads. Hardens in less than an hour; full strength in 24 hours. Will not shrink. Powders for mixing with water.

No. 4AA—Bright Gray with High Luster

Size Can……pounds	1	5	*50
No. 4AA……per container	$.65	2.75	20.00

No. 4A—Medium Gray

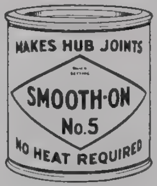
Size Can……pounds	1	5	20	*100
No. 4A……per container	$.50	2.00	6.50	25.00

No. 4B—Dark Gray

Size Can……pounds	1	5	20	*100
No. 4B……per container	$.40	1.60	5.25	22.00

*Drum.

No. 5 Smooth-On Iron Cement



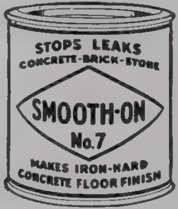
An iron cement in powder form. Used by mixing with water.

For caulking bell-and-spigot joints in cast iron soil, water, or gas pipes.

Requires no heat.

5-Pound Can	per container	$1.60
100-Pound Keg	per container	22.00

No. 7 Smooth-On Iron Cement



A hydraulic iron cement in powder form.

For sealing joints, cracks and stopping leaks in concrete, brick or stone. Can be used for making iron hard wearing surface on concrete floors.

Size Container……pounds	1	5	20	100
No. 7……per container	$.40	1.60	5.25	22.00

Devcon Plastic Steel

For use in making jigs, molds, etc.

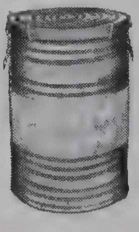
A combination of approx. 80% steel and 20% plastic. Requires approx. two hours hardening time. No heat or pressure required.

Available in Devcon A, a non-sagging putty or Devcon B, a semi-viscous liquid. **Specify** type desired.

Tensile str., 10,000 psi; compressive str., 15,000 psi.; flexural str., 13,000 psi.; Rockwell hardness, F Scale 75.

	Can		Pack
Size Container……lb.	1	4	24
Type A or B……per lb.	$3.00	2.85	2.85
Ind. Boxed; No. per Case	24	12	..
Shipping Wt……lb.	50	74	50

Golden Glow Sweeping Compound



This sweeping compound absorbs dust and germs. It contains cedar oil, paraffine oil and excelsior fibre.

Cannot dry out or freeze. Does not stain.

100-Pound Steel Drums	per pound	....
200-Pound Fiber Drums	per pound	....
300-Pound Fiber Drums	per pound	....

Le Page's Glue

LEPAGE'S
strength
LIQUID GLUE

Always ready for use for all kinds of mending and patching such articles as wood, leather, cloth, etc.

One of the important features of this adhesive material is the can in which it is packed. This is equipped with a patent top, outside friction, easily opened with a screwdriver and when properly put on is perfectly airtight.

No.	30	31	32	33	35	36
Each	**$.50**	**.85**	**1.50**	**2.65**	**7.50**	***7.30**
Size Can	1-Gill	½-Pt.	1-Pt.	1-Qt.	1-Gal.	5-Gal.

No. **25**, Bottles	each **$.25**
No. **27**, Tubes	each **.25**

*Per gallon.

Waverly Hi-Dri Oil and Grease Absorbent

Hi-Dri
THE ALL-PURPOSE FLOOR ABSORBENT
by
Waverly
WAVERLY PETROLEUM PRODUCTS CO.
PHILADELPHIA, PA.

A quick, efficient granular absorbent of oil and grease accumulations on concrete, steel and wooden floors. Prevents slippery floors. Recommended for use by machine shops, ships, shipyards, mills, printing plants, garages and service stations, etc.

Harmless and will not injure the body, clothing, shoes, painted surfaces or metals. Will not burn.

An active cleaner, capable of drawing oil and grease stains from the floor itself. Also is a deodorant.

Packed in 50-pound, sealed, tough paper bags.

Per Bag	**$3.75**

Waverly Dri-Zit

All Purpose Absorbent

Listed by Underwriters' Laboratories

50 LBS. NET
Waverly
DRI-ZIT
ALL PURPOSE FLOOR ABSORBENT
WAVERLY PETROLEUM PRODUCTS CO
PHILADELPHIA, PA

A granular, mineral compound. Absorbs oil and grease accumulations from concrete, composition, steel or wood floors and restores floor to its original brightness.

Immediately creates a safe, non-skid surface. Even when oil-soaked it will not readily burn, thereby lessening the fire hazard.

Will not harm skin, clothing, shoes, metals or painted surfaces.

Packed in 50-pound paper bags.

Shipping weight, 50.8 pounds.

Per Pound	....

Desolvo Sewer and Drain Pipe Cleaner

DESOLVO
Sewer and Drain
Pipe Cleaner
THE CHAMBERLAIN COMPANY
PITTSBURGH PA

Desolvo, a triple-strength cleaner, is a combination of mineral elements so intermingled that upon its mixture with water a chemical reaction takes place, generating intense heat.

Cleans clogged pipes and has solved the problem of removing obstructions in drain, waste, and sewer pipes, or from washstands or closets, caused by the accumulation of grease, soap, rags, hair, and vegetable or other organic matter.

Contains no acids and will not injure the plumbing fixtures or connections. Not to be used on aluminum.

Size Can	12-Oz.	16-Oz.	2-Lb.
Each	....	...	...

King-of-All Septic Tank Kleener

For Septic Tanks, Sewers and Cesspools

King-Of-All
SEWER AND SEPTIC TANK KLEENER
Will Make Your Septic Tank Good as New and Will Remove Fibrous Growths and Obstructions From Sewers

Removes grease and other accumulations from the tank without destroying the bacteria.

Will activate the bacteria in a completely dead tank in 30 minutes.

In its action it liquefies the grease and solids, washing the same out of the drain and leaving the tank in a new condition.

Packed in gallon containers, 6 pounds per can net; 4 gallons per case.

Shipping weight per case, 29 pounds.

Per Gallon	**$5.00**

Rooto Root Remover and Septic Tank Clearer

ROOTO
ROOT-BLOCKED SEW

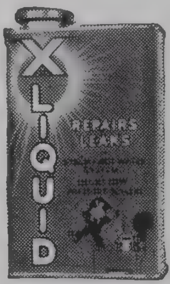
Clears root-blocked sewers, waste-choked septic tanks and cesspools, and clogged drains and grease traps.

Requires no digging and no investment in expensive, hard-to-replace mechanical equipment.

No.	Description	Size Can Lb.	No. in. Ctn.
1	Clears Average Root-Blocked Sewer	*25	..
2	Clears Waste-Clogged Septic Tanks and Cesspools and Sluggish Sewers	6½	4
3	For Drains and Grease Traps	2	12
4	For Household Drains	⅞	24

*Packed in steel drum with gasket cover.
Prices and additional information on request.

X Boiler Liquid


X
LIQUID
REPAIRS LEAKS

Used for repairing leaks in high and low pressure steam boilers and hot water heating systems.

Liquid is a colloid; contains gums which dissolve in hot water.

Does not contain flaxseed, meal, aluminum shavings or any solid that will interfere with the circulation of the heating system, valves, etc.

Size Container	1-Qt.	½-Gal.
Each	**$3.85**	**5.90**
No. in Carton	12	6
Weight per Carton, pounds	34½	32

Rutland Furnace Cement

Makes joints in hot-air furnaces smoke tight and gas tight.

Used in both new installations and for repairs of various kinds in connection with heating equipment.

Ready to use.

RUTLAND
BLACK ASBESTOS
Furnace Cement
RUTLAND FIRE CLAY CO., RUTLAND VT

Black or Buff		**Black**
Size Can Lb.	No. per Case	Size Container
1	24	**25**-Lb. Pail
5	12	**50**-Lb. Pail
10	6	**100**-Lb. Pail

No. 302 J-M Insulating Cement

Made of asbestos fiber and binding materials. Easy to mix and apply; readily sticks to hot surfaces. Finishes with a hard, durable attractive surface. Does not crack, break or peel.

Covering capacity, 25 square feet, 1 inch thick, per bag.

Packed in 100-pound bags.

J-M Asbestos Insulating Cement

No. 0352

Used by plumbing and steamfitting trade.

Covering capacity, applied and dried, 19 square feet, 1-inch thick, per 100 pounds.

No. 352. A general utility short fiber, quality cement. Packed in 50 and 100-pound bags.

No. 0352. An inexpensive cement. Packed in 100-pound bags.

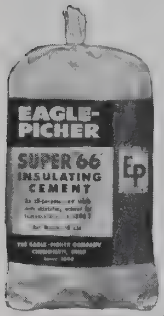
No. 400 J-M Asbestos Insulating Cement

Smooth-finishing cement of good insulating value. Covering capacity, 25 square feet, 1 inch thick per bag

Packed in 100-pound bags. Prices upon application.

Eagle-Picher Super "66" Insulating Cement

Maximum Temperature, 1800°F.



For insulating practically any form of heated equipment with a full range of temperatures not exceeding 1800°F. Mix with water and apply.

Composed of Eagle-Picher Mineral Wool Insulation, asbestos fiber, a high grade binder, and other elements combined to provide an efficient, heat-resistant insulation which prevents rust and corrosion.

Shrinkage is almost negligible; will not crack, crumble or flake off.

Can be applied without reinforcing on most pipe fittings.

Adheres to any clean surface—hot or cold. Reclaimable up to 1200°F.; extremely efficient up to 1800°F. Coverage: approximately 50 to 55 square feet 1 inch thick per 100 pounds when dry. Put up in 50-lb. bags.

J-M 85% Magnesia Cement

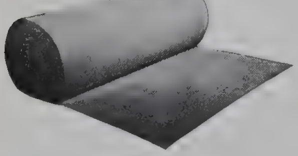
Recommended in cases where a cement of high insulating value is desired, for temperatures not exceeding 600° F.

The 85% Magnesia cement is composed of approximately 85% basic carbonate of magnesia and 15 per cent asbestos fiber. It is exceptionally light, and has a large covering capacity.

Furnished in bags containing 60 pounds each. Has a covering capacity of approximately 35 square feet one inch thick, per bag.

No. 444 J-M Asbestos Cloth

Made of asbestos yarn, commercial grade, woven into fabric. Forms a soft, flexible textile, a mineral cloth which resists heat and chemicals.



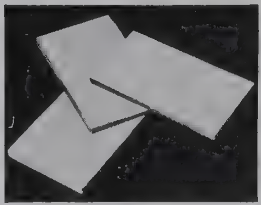
Used for annealing and fire smothering blankets, clothing, covering insulation, covers, shields of workmen, theatre curtains, motion picture portable booths, wrapping, etc.

Warp yarn and filler yarn, 10-cut and 2-ply. Warp ends per inch, 18 to 19; filler ends per inch, 10.

Furnished in 36 or 40-inch widths. Standard roll contains 50 linear yards. Weight per square yard, 2.25 pounds.

Prices upon application.

J-M Asbestos Sheet Millboard



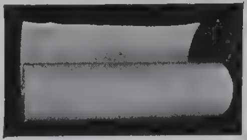
Recommended for general uses requiring sheet or board as a fireproof lining for floors, partitions, ceilings, elevator shafts, ranges, stoves, grates, etc.

Made in hard, medium, and soft grades. Medium furnished unless otherwise specified.

Standard sheets 42x48 inches.

Thickness In.	Approx. Wt. Lb. per Sheet	Thickness In.	Approx. Wt. Lb. per Sheet	Thickness In.	Approx. Wt. Lb. per Sheet
1/32	2.5	1/8	9	3/8	25.2
3/64	3.5	5/32	11.3	1/2	32.5
1/16	4.6	3/16	13.3	5/8	40.0
5/64	6	1/4	17.6	3/4	46.6
3/32	7	5/16	21.4	..	....

Asbestos Paper and Roll Board



	Paper		Roll Board	
*Thickness...in.	1/32	1/16	‡3/32	‡1/8
†Approx. Wt. 100 Sq. Ft.lbs.	16	32	48	64

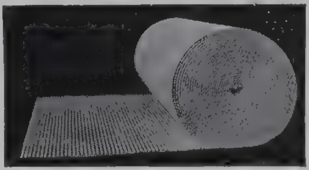
*Actual thickness may vary ±.02 inch.

†Actual weight may vary ±10%.

‡3/32 and 1/8 inch known as asbestos roll board.

Furnished in 25, 50 and 100-lb. rolls.

J-M Asbestocel—Flexible Roll Form

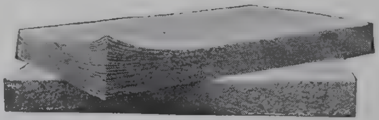


Generally used for insulating hot air heater casings and furnace pipes. Furnished in rolls 36 to 37 inches wide containing approximately 250 or 125 square feet.

Thickness, 1/4 inch.

Prices upon application.

J-M Sheets and Blocks



Asbesto-Sponge Felted, 85% Magnesia, Superex, Pan-O-Cel, Vitribestos, Asbestos Fire-Felt, Super Fire-Felt, and Asbestocel. Prices on request.

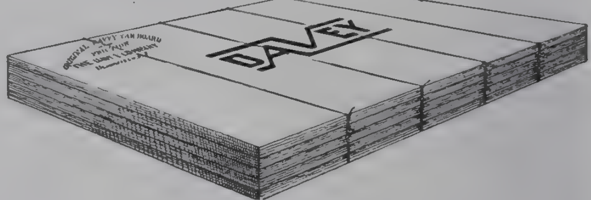
Cold Water Paste

An economical, convenient and practical form of paste. Can be mixed with either hot or cold water.

Put up in small bags or kegs and barrels.

2-Pound Bags	per pound	.....
5-Pound Bags	per pound	.....
50-Pound Kegs	per pound	.....
200-Pound Barrels	per pound	.....

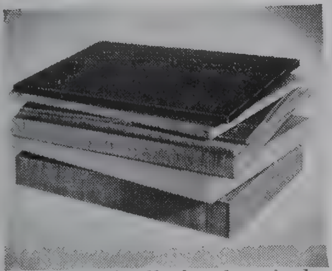
Original Davey Grey and Red Friction Board



No.	Per Lb.	Thickness Inch	Size Boards Inch	No. of Boards to Bundle	Approx. Wt. Lb. per Bundle
4	...	1/4	34x44	4	55–60
5	...	3/16	34x44	5	55–60
7	...	1/8	34x44	7	50
14	...	1/16	34x44	14	50

Other intermediate numbers between 4 and 16 can be supplied on order. Prices upon application.

Red Vulcanized Fiber Sheets



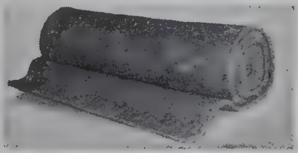
In Quarter Sheets
Approx. 24x42 Inches

Thick. In.	Each	Wt., Lb. per ¼ Sheet
1/64	....	¾
1/32	....	1½
1/16	....	3
3/32	....	4½
⅛	....	6
3/16	....	9
¼	....	12
5/16	....	15
⅜	....	18
½	....	24
⅝	....	30
¾	....	36
⅞	....	42
1	....	48

Used principally for electrical and mechanical insulating purposes and for light mechanical frictions.

Very hard; while flexible to a certain extent, is tough and extremely resilient.

J-M Standard Hair Felt Insulation



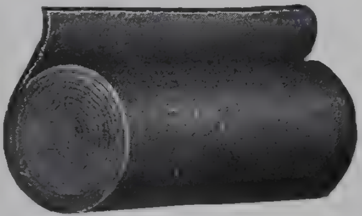
Made from 100 per cent selected cattle hair by an improved felting process.

For refrigerator car insulation, and for insulation of fittings on cold water pipes. Furnished 6 feet wide by 50 feet long, 3 feet wide by 100 feet long, 3 feet wide by 50 feet long, and 9 feet wide by 50 feet long.

Thickness........inches	¼	½	¾	1	1¼	1½	2
Wt. per Sq. Ft...ounces	4	6¼	8½	11	13½	16	21

Prices on application.

Sheet Felt



In seven grades; fine white, medium fine white, coarse white, shoe manufacturers' felts, block cutter felt, grey felt, and oil box.

Sheet is 16 to 36 inches square, ¼ to 3 inches thick.

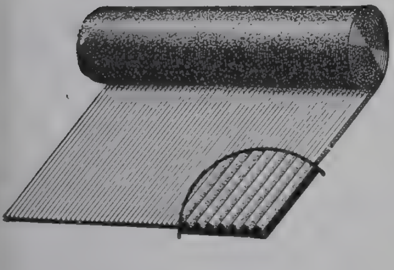
Felts over 36 inches square or over 3 inches thick cost .05 cents per pound extra.

Felts under ¼ inch thick cost .25 cents per pound extra.

Any size sheet made to order.

Prices upon application.

Corrugated Rubber Matting



Made of high grade rubber, scientifically fortified to resist oxidation. Will not bloom or turn gray. Retains its fresh, original color. Is easily cleaned by brushing or washing. Lies smooth and flat without curling or wrinkling.

Comes in two colors, black and brown.

Available in 24, 36 and 48-inch widths, ⅛-inch thick. All widths in approximately 25 and 50-yard rolls.

Prices upon application.

Sectional Pipe Insulation

Supplied in sections 3 feet long, canvased; with brass lacquered bands.

Use standard thickness prices for thicknesses 1 inch and under.

Per Linear Foot

I.D. Pipe Inches	**Standard** Thickness	†**Double Standard** Thickness	1½-Inch Thickness	2-Inch Thickness	2½-Inch Thickness	3-Inch Thickness, Broken Joint
½	$.22	$.65	$.46	$.75	$1.00	$1.20
¾	.24	.70	.49	.80	1.05	1.35
1	.27	.75	.52	.85	1.10	1.40
1¼	.30	.80	.56	.90	1.15	1.45
1½	.33	.85	.60	.95	1.20	1.55
2	.36	.90	.64	1.00	1.25	1.65
2½	.40	1.00	.70	1.05	1.35	1.75
3	.45	1.10	.76	1.15	1.50	1.90
3½	.50	1.20	.82	1.25	1.65	2.05
4	.60	1.40	.88	1.35	1.80	2.20
4½	.65	1.50	.94	1.45	1.95	2.35
5	.70	1.60	1.00	1.55	2.10	2.50
6	.80	1.80	1.10	1.70	2.25	2.70
7	1.00	2.25	1.20	1.85	2.40	2.90
8	1.10	2.50	1.35	2.00	2.55	3.15
9	1.20	2.70	1.50	2.20	2.80	3.40
10	1.30	2.90	1.65	2.40	3.05	3.65
*12	1.85	4.10	1.85	2.70	3.40	4.10
14 O.D.	2.10	4.60	2.10	3.00	3.80	4.60
16 O.D.	2.35	5.10	2.35	3.30	4.20	5.10
18 O.D.	2.60	5.60	2.60	3.60	4.60	5.60
20 O.D.	2.85	6.00	2.85	4.00	5.00	6.00
24 O.D.	3.30	7.00	3.30	4.50	5.75	7.00
30 O.D.	4.00	8.40	4.00	5.50	6.95	8.40

*Sizes 12-inch and larger furnished in segmental form. 12-inch can be supplied in sectional type on special order.

†Only 85% Magnesia made in this thickness.

J-M Pre-Shrunk Asbestocel Pipe Insulation

Cellular type of insulation for pipes carrying low pressure steam or hot water.

Made up of alternate layers of plain and corrugated, specially-treated, moisture-resistant, asbestos felts.

Available in three finishes: glazed white (will not carry flames), asbestos-covered high-speed finish and regular canvas-covered finish.

Furnished in 3-foot sections in thicknesses of 2 to 8 plies, each ply approximately ¼-inch thick.

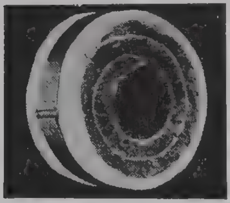
J-M 85% Magnesia Pipe Insulation

Under actual service conditions 85% magnesia has proved to be the most economical and efficient insulation of the molded type for temperatures to 600°F. This insulation has the maximum mechanical strength consistent with its high insulating efficiency.

Made in various thicknesses from standard (approximately 1 inch thick) to 3 inches, in 3-foot sections with canvas jacket and bands, to fit standard pipe sizes. For larger sizes, curved segments or blocks are supplied.

Also furnished in blocks for covering boilers, boiler flues, and other large regular and irregular surfaces

J-M Zero Sectional Pipe Insulation



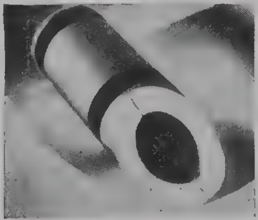
For insulating cold water pipes located where there is likelihood of the water in the pipes freezing, but where temperatures are moderate rather than extreme or where the length of time that the surrounding air would be below freezing-point is short. Constructed of layers of hair felt and alternate layers of wool felt with a lining of saturated wool felt inside.

For all pipe sizes from ½ inch up in one thickness only, approximately 1¼ inch, in 3-foot sections with canvas jacket and bands, to fit standard pipe sizes.

Also supplied in sections to fit straight runs of copper pipe or tubing of nominal diameters from ⅜ to 6 inches.

J-M Pre-Shrunk Wool Felt Pipe Insulation

For Hot and Cold Water Service Lines

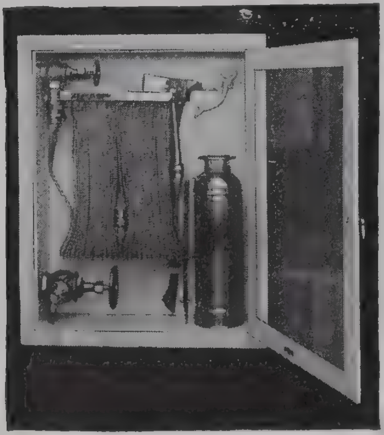


Made of special indented wool felt by a process which reduces conductivity and weight. Has a dual service liner os asphalt saturated felt. Furnished with canvas finish.

Available in sections 3 feet long, in thicknesses of ½, ¾, 1½ and 2-inch single; 1, 1½ and 2-inch double layer.

Prices will be furnished upon application.

No. 192 Allenco Fire Hose and Extinguisher Cabinets



For Unit No. 1

Hollow pressed steel cabinet with double strength DSA, plate glass or duo-panel steel door. Furnished with a sprayed, air dried, white enamel finish inside and outside. Baked-on white enamel, or other finishes or colors, prices on request.

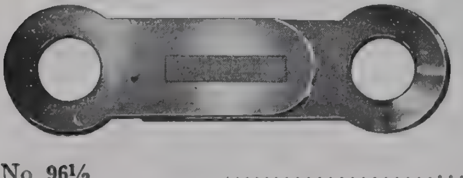
Cabinet will accommodate one Bowes Hose Rack with linen hose, hose coupling and nipple, hose nozzle, 1½ and 2-inch angle hose valves, hose cap and chain, 2½-gal. extinguisher, fire axe, brackets, and spanner wrench.

Capacity, 50, 75, or 100 ft. of hose; valve size 1½ and 2½ in.

Inside height, 38¾ in.; inside width, 30¾ in.; inside depth, 8½ in. Height of trim, 43½ in.; width, 35½ in.

No. 192, Cabinet Only, with DSA Glass Panel . each	$87.30
No. 192, Cabinet Only, with Plate Glass Panel . . each	108.40
No. 192, Cabinet Only, with Duo-Panel Door . . each	114.00
Size Glass . . . . inches	26x34

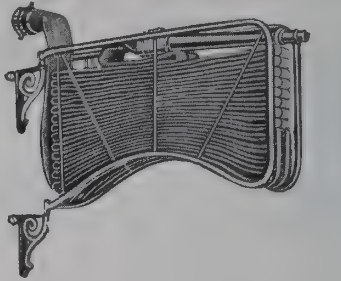
No. 96½ Fusible Links for Fire Doors



For doors and windows constructed to close automatically by heat. These links melt at 160 degrees.

No. 96½ . . . . each	$.45

Type T Wirts Hump Hose Racks



For mills, factories, plants, docks, and railroads.

Either linen or single jacket cotton rubber lined hose may be used on this rack. The front end is partially enclosed. This basket formation holds the stack of hose in position when drawn off, preventing the stack from sliding out bodily and falling to the floor in a tangled mass.

Standard finish is red enamel. Prices on white enamel, nickel-plate, and other finishes on request. Unless attachments and finish are specified, wall brackets and red enamel finish will be furnished.

Approved by the Associated Factory Mutual Fire Insurance Companies.

For Unlined Linen Hose

No.	Each	Size Hose Inches	Capacity Feet	Height Incl. Wall Brkts. Inches	Length Incl. Wall Brkts. Inches	Measurements Bet. Sides Inches	Ship. Wt. Lb.
S-1	$13.70	1¼ or 1½	75 or 100	20⅞	29¾	2⅞	20
S-2	13.70	2 or 2½	75 or 100	20⅞	29¾	4⅜	21
S-3	15.80	1¼ or 1½	150	27⅞	33½	2⅞	30
S-4	15.80	2 or 2½	150	27⅞	33½	4⅜	30
S-5	16.90	1¼ or 1½	200	38⅞	39¾	2⅞	62
S-6	17.85	2 or 2½	200	38⅞	39¾	4⅜	63
For Cotton Rubber Lined Single Jacket Mill Hose							
S-3	$15.80	1¼ or 1½	50	27⅞	33½	2⅞	30
S-4	15.80	2 or 2½	50	27⅞	33½	4⅜	30
S-5	16.90	1¼ or 1½	100	38⅞	39¾	2⅞	62
S-6	17.85	2 or 2½	100	38⅞	39¾	4⅜	63

Pyrene Vaporizing Liquid Type Fire Extinguishers

Heavy Duty Stored Pressure Type

No. C42

Constructed of stainless steel and brass. Has two chambers, inner contains air pressure; outer, liquid. Continuous stream of liquid expelled through flexible rubber covered metal hose. Built-in pump renews air pressure. Air valve for use with service line also provided. Open face pressure gage attached to top casting.

2-Quart Capacity

Listed by Underwriters' Laboratories
Approved by Associated Factory Mutual Laboratories

For incipient fires in all classes of materials, inflammable liquids, electrical fires. Air pressure renewable at any air line producing 100 pounds pressure. Furnished completely charged, with wall bracket, screws and recharge date tag. Special clamping type bracket available for mounting on vehicles. Height 18 inches; diameter 5 inches.

Weight, charged, 16½ lb.; shipping weight, 18 pounds.

No. C102, Stainless Steel, without Pump . . . . each	$60.00
No. C103M, Brass . . . . each	63.00

1-Gallon Capacity

Listed by Underwriters' Laboratories
Approved by Associated Factory Mutual Laboratories

For industrial use, filling stations, electrical equipment, etc. Carrying strap. Stream controlled over 30 to 40 ft. range. Wall or vehicle bracket available.

Height overall, 23 inches; diameter, 6 inches.

Weight, charged, 34 pounds; shipping weight 39½ pounds.

No. C42, 1 Gal. Stainless Steel, with Pump . . . . each	$95.00
No. C42A, 1 Gal. Stainless Steel, without Pump . each	90.00
No. CR4, 1-Gal. Recharge, 4 in Package . . . . each	7.15

Combination Standard Nozzle For Both 2 Qt. and 1 Gal.

In ordering, specify color finish or supply color sample.

No. C11P Pyrene Home Type Fire Extinguishers

1 Pint Capacity

For the home and automobile. Effective on all types of small fires, inflammable liquids and electrical appliances. Will not damage upholstery or furnishings.

Operates by air pressure. Discharges a steady 25-foot stream in any direction. Instant on-and-off push-button action.

Shell is stainless steel with red plastic top and matching wall bracket. Brass valve assembly and nozzle molded in head. Push button protected by metal clip to prevent accidental operation.

Can be pressurized at any filling station air pump.
Height, 9 inches; diameter, 2⅝ inches.
Packed 24 in a package. Weight per package, 85 pounds.

No. C11P, with Wall Bracket.................each **$7.95**

Pyrene Vaporizing Liquid Type Fire Extinguishers

Small Hand Pump Type

For use on all electrical fires and fires from oil, paint, or highly inflammable materials. Liquid is a non-conductor of electricity. Will not freeze at 50°F. below zero.

Packed 1 quart, 12 in a package; 1½ quart, 6 in a package.

No.	Each	Description	Cap.
C21	**$17.50**	Brass, Wall Bracket	1-Qt.
C21T	**18.75**	Brass, Heavy Vehicle, Clamp Bracket	1-Qt.
C24	**21.90**	Chrome, Wall Bracket	1-Qt.
C24T	**23.15**	Chrome, Heavy Vehicle, Clamp Bracket	1-Qt.
C31T	**22.50**	Brass, Heavy Vehicle, Clamp Bracket	1½-Qt.
C34T	**26.90**	Chrome, Heavy Vehicle, Clamp Bracket	1½-Qt.

Extra Brackets

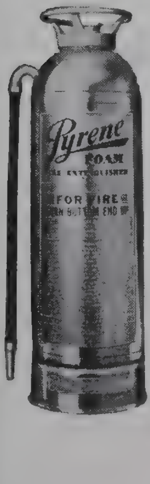
No.	Each	For Size Extinguisher
B2	**$1.25**	1-Quart Standard
B2B	**2.75**	1-Quart Marine Brass
B3T	**2.25**	1-Quart Truck (Clamp Type)
B4T	**2.90**	1½-Quart Truck (Clamp Type)

Pyrene Vaporizing Liquid Type Recharges

No. CR1, 1-Pint Can, 24 in Package...........each **$1.03**
No. CR2, 1-Quart Can, 20 in Package.........each **2.03**
No. CR4, 1-Gallon Can, 4 in Package..........each **7.15**
No. CR6, 50-Gallon Drum, 1 in Package.......each **331.00**

Pyrene Fire Extinguisher Liquid, dyed red, will be supplied when specified at no additional cost. **When ordering,** specify color finish or supply color sample.

No. PW 12 Pyrene 2½-Gallon Foam Type Fire Extinguishers



(Formerly Fastfome)

Listed by Underwriters' Laboratories

Approved by Factory Mutuals

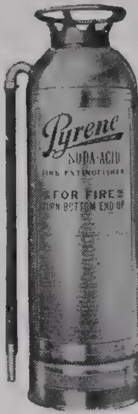
Foam type; blankets fire.

Releases 22 gallons of tough fire-killing foam. Foam spreads rapidly over burning surface, cutting off supply of oxygen. Once extinguished, fire cannot reignite.

Stainless steel welded shell.

No. PW12, Stainless Steel....each **$44.50**
No. PXR1, Recharge, 12 in Pkg.ea. **2.15**

No. SW 12 Pyrene 2½-Gallon Soda-Acid Type Fire Extinguishers



Listed by Underwriters' Laboratories

Approved by Associated Factory Mutuals

Will extinguish incipient fires in freeburning materials where the cooling and quenching effect of water is of first importance. It throws a stream 40 feet in any direction. It should be protected against frost.

Stainless steel welded shell.

No. SW12, Stainless Steel......each **$40.60**
No. SXR1, Recharge, 24 in Pkg..ea. **1.05**

No. S13 Pyrene 2½-Gallon Soda-Acid Fire Extinguishers

(Formerly Guardene)

Listed by Underwriters' Laboratories

Discharges 40-foot stream, effective on incipient fires in ordinary combustibles.

Has patented press assembled collar and seamless drawn dome and shell of one-piece copper. Tested to 500 lb. Fire Department type has non-slop stopple, longer hose, shut-off nozzle, and pressure relief valve.

Complete with charge, wall hanger, recharge date tag. Ht. 24 in. Diam., 7 in.

Shipping weight, with charge, 19½ pounds; fully charged for use, 37½ pounds.

No. S13, Polished Copper......each **$41.60**

Soda-Acid Recharges

No. SXR1, 2½-Gal. Can; Pkg., 24.ea. **$1.05**
No. SR2, 20-Gal. Can; 1 in Pkg...ea. **9.05**
No. SR3, 40-Gal. Can; 1 in Pkg..ea. **12.10**

No. W13 Pyrene Anti-Freeze Fire Extinguishers

Capacity 2½ Gallons, Cartridge Operated
Listed by Underwriters' Laboratories and Factory Mutuals

For protection of unheated warehouses, docks, bridges and locations, subject to freezing temperatures, containing ordinary combustible material. Ejects 40-ft. stream.

Solution made anti-freezing to 40° below zero F. by dissolving Pyrene Freezeproof in water. Operated by pressure from carbon dioxide gas cartridge.

Seamless shell. Polished copper finish.

Packed individually.

No. W13, Ship. Wt. 27 Pounds....ea. **$57.35**
No. WR1 Ex. Charge and Cartridge......................ea. **12.50**
No. HWCR1 Empty Cartridge Recharge.......................ea. **3.90**

PYRENE
***minimizes* FIRE HAZARDS**

Fire multiplies itself rapidly, therefore effective equipment should be kept available for use at the inception of a fire.

Let us install the type of Pyrene Extinguisher made especially to cope with the fire hazards in your plant.

Pyrene 2½-Gallon Gas Cartridge Water Type Extinguishers

(Formerly Hydrogarde)

Listed by Underwriters' Laboratories

Pyrene
WATER-TYPE EXTINGUISHER

Discharges 40 to 50-foot stream of water by means of pressure from carbon dioxide gas cartridge. Turn upside down and strike plunger on floor to release pressure. Annual recharging not required; replace water, insert cartridge. Weight, 21 pounds.

Stainless steel welded or seamless drawn one-piece shell.

No. HW12, Stainless Steel	each	$48.50
No. H13, Polished Copper	each	54.50
No. HWC1, Extra Cartridge (New Type)	each	9.63
No. HWCR1, Recharging Cartridge (New Type)	each	3.90

Pyrene Copper Pump Tank Fire Extinguishers

(Formerly Duragarde)

Listed by Underwriters' Laboratories

Approved by the Merchant Marine Council of U. S. Coast Guard and Associated Factory Mutual Laboratories.

Pyrene
PUMP TANK
FOR USE OPERATE PUMP

2½-Gallon

Pyrene
PUMP TANK
FOR USE OPERATE PUMP

5-Gallon

For class A fires. The correct type of extinguishers for farm property, lumber camps and yards, unheated warehouses, etc. Ideal for extinguishing incipient fires in brush or forest. Throws a steady powerful stream 45 feet.

Tank is built of durable, fine quality sheet copper. Tinned on the inside as a further protection against corrosion.

Height, 26½ inches.

Diameter, 9½ inches.

Equipped with a mechanically perfected, double-acting, non-syphoning pump. Brass piston. Heavy seamless-drawn brass cylinder. Nozzle outlet, ⅛-inch.

No. T13, 5-Gallon Polished Copper	each	$44.75
No. T23, 2½-Gallon Polished Copper	each	41.50

Anti-Freeze Charges

No. TR2, 2½-Gallon Capacity, 1 in Package	each	$2.88
No. TR1, 5-Gallon Capacity, 1 in Package	each	5.75

Pyrene Steel Pump Tank Fire Extinguishers

(Formerly Accurate)

Listed by Underwriters' Laboratories, Merchant Marine Council of U.S. Coast Guard, Associated Factory Mutual Laboratories

Pyrene
PUMP TANK
FOR USE OPERATE PUMP

For heated and unheated property where hazards are of free-burning materials such as wood, rubbish, paper, etc. Throws a steady stream of water 45 feet.

Steel tank, green enamel finish. Double acting pump of heavy brass.

Packed 1 in a carton. Weight, 16½ lb.

No. T15, 5-Gallon Can	each	$34.35
No. T25, 2½-Gallon Can	each	32.00
No. TR1, Recharge, 5-Gallon Can	each	5.75
No. TR2, Recharge, 2½-Gallon Can	each	2.88

C-O-Two Hand Fire Extinguishers

Carbon Dioxide Type With Squeez-Grip Valve

Listed by Underwriters' Laboratories

C-O-TWO
C-O-TWO

For highly inflammable liquids, paints, oils, solvents and alcohol fires, and for protection of electrical equipment. Cylinder is of high pressure steel and I.C.C. approved.

Squeez-Grip valve has pressure-closing seat, closed against leakage by pressure of carbon dioxide. Squeez-Grip valve more efficient than hand-wheel type: no lost gas or motion while maneuvering around fire. Gas released as quickly as hand can be closed. High pressure metallic and rubber hose with cotton braided cover. Discharge horn non-breakable. Any carbon dioxide gas supplier will recharge.

Has operation-instruction card, cylinder record tag and wall hook.

No.	PSA-2½	PSA-5	PSH-10	PSH-15	PSH-20
Each	....	......	....	....	....
Recharge.....ea.	....	......	....	....	....
Cap.....lb.	2½	5	10	15	20
Lgth. Hose....in.	†	†	36	36	36
Wt.....lb.	9	16½	34	42	55

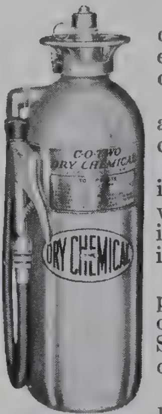
†Furnished with swivel tube.

Extra Hooks and Brackets

No.	Each	Description	For Extinguishers Pounds
PWH-2½ to 20	....	Wall Hook	2½ to 20
PWB-2½	....	Wire Bracket	2½
PB-5 to 20	....	Marine Bracket	5 to 20
PRB-5	....	Running Board Bracket	5
PRB-10 to 20	....	Running Board Bracket	10 to 20

C-O-Two Dry Chemical Fire Extinguishers

Listed by Underwriters' Laboratories and Factory Mutual Laboratories for Class B and C Fires



Fully approved and built to rigid specifications. For flammable liquid, gas and electrical fires and surface fires involving ordinary combustible materials.

Fast action—pull locking collar, invert and bump to actuate; has squeeze type discharge nozzle with built-in diffuser.

C-O-Two dry chemical is a finely pulverized powder; remains free flowing in use, withstands storage without deterioration; in contact with fire absorbs heat, decomposing into fire extinguishing gas.

Self-contained, mechanism enclosed; one-piece removable top assembly with carbon dioxide pressure cartridge, inner shell. Simple recharge, large opening for refilling dry chemical charge.

Steel cylinder; brass and stainless steel parts.

A heavy duty bracket is included with 4-pound size and wall hook with 20 and 30-pound sizes, at no extra charge. Running board brackets are also available.

		CYLINDER INCHES		OVERALL INCHES			Lgth. Hose	
No.	Cap. Lb.	Ht.	Diam.	Ht.	Width	Depth	In.	Wt. Lb.
PDC-4	4	15½	3½	18½	4⅝	3¾	8¼	12½
PDC-20	20	20	6¾	23⅞	9	6¾	27½	41¼
PDC-30	30	21½	7¾	25⅜	10	7¾	31¼	58½

No. WDC-150, 150-Lb. Wheeled Portable Type.

Dry Chemical Recharges

No.	RDC-4	RDC-20	RDC-30	RDC-50
Weight of Contents..lb.	4	20	30	50
Type of Container..	Metal	Fiberboard		

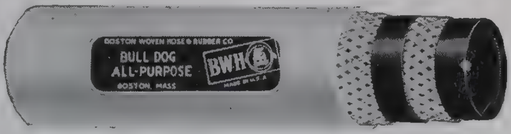
No. CRDC-4, 20 and 30 CO_2 Pressure Cartridge Exchange Recharges; 4, 20 and 30-Pound.

No. NCRDC-150 N_2 Pressure Cylinder Recharge; 150-Pound.

No. CDC-4, 20, and 30 CO_2 Pressure Cartridge Spares; 4, 20 and 30-Pound.

No. NCDC-150 N_2 Pressure Cylinder Spare; 150-Pound.

Boston All-Purpose Hose



All-synthetic; for air, water, oil, gasoline and kerosene; not recommended for paints, lacquers or lacquer solvents. Vertically braided, molded lead press cured. Black synthetic oil and heat-resistant tube. Carcass: braided of cotton cord. Black, smooth cover of synthetic; oil, abrasion and sunlight-resistant.

Maximum length, 500 feet. Couplings not furnished.

1-Braid				2-Braid				3-Braid			
Size In.	O.D. In.	Max. Work. Press. Lb.	Approx. Wt. Lb. per 100 Ft.	Size In.	O.D. In.	Max. Work. Press. Lb.	Approx. Wt. Lb. per 100 Ft.	Size In.	O.D. In.	Max. Work. Press. Lb.	Approx. Wt. Lb. per 100 Ft.
3/16	7/16	250	9	1/4	5/8	300	18	1 1/4	1 7/8	200	101
1/4	1/2	250	11	5/16	11/16	300	19	1 1/2	2 3/32	175	123
5/16	5/8	250	16	3/8	3/4	300	23	...	. .	...	...
3/8	11/16	250	18	1/2	29/32	250	29	...	. .	...	...
1/2	7/8	200	28	3/4	1 1/4	250	50	...	. .	...	...
...	...	...	..	1	1 1/2	250	65	...	...	...	...

Boston Vim Water Hose
Molded Braided Construction

Two-braid hose recommended for general water hose service.

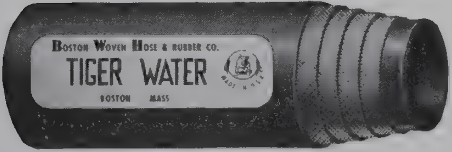
Three-braid hose recommended for heavy duty water hose service.

Resistant to water which is weakly acid or contains alkalies. Cotton braids are impregnated with friction to bond plies together. Cover is a high tensile rubber compound resistant to abrasion and sun checking.

Furnished in bale lengths up to 500 ft. for sizes under 1 1/4 in. and up to approximately 250 ft. for 1 1/4 and 1 1/2 in. sizes.

Size In.	No. Braids	O.D. In.	Working Press., PSI.	Per Foot
1/2	2	15/16	175	....
3/4	2	1 7/32	150	....
3/4	3	1 21/64	175	....
1	2	1 31/64	125	. ..
1	3	1 19/32	150	....
1 1/4	3	1 57/64	150	. ..
1 1/2	3	2 3/32	125	. ..

Boston Tiger Water Hose
Wrapped Duck Construction



Recommended for general water hose service.

Resistant to water that is slightly acid or contains alkalies. Multiple plies of frictioned cotton fabric insures strength. Cover protects the reinforcing fabric plies.

Regularly furnished in 50-foot lengths.

Size.......in.	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/2	3	4	6	8	10
No. Plies.....	4	4	4	4	4	4	4	4	4	4	5	6	8
Working Press....psi.	200	175	150	125	120	110	100	90	75	75	75	75	75

Boston Bull Dog Creamery Hose
Wrapped Duck Construction

BOSTON WOVEN HOSE & RUBBER CO.
BULL DOG CREAMERY
BOSTON MASS

For general service in cleaning all plants that manufacture or handle food products.

Tube is compounded to resist the action of hot or cold water and low steam pressure without becoming brittle and cracking. Multiple plies of rubberized duck insure strength for recommended pressures. Cover is white and resists greases or animal fats. In 50-foot lengths.

Size.....in.	*1/2	*3/4	1
No. Plies.....	4	4	4
Nominal O.D.....in.	1 1/32	1 9/32	1 17/32
Water Pressure per Square Inch.....lb.	200	175	150
Steam Pressure per Square Inch.....lb.	40	40	40

*Also available with tapered rubber nozzle.

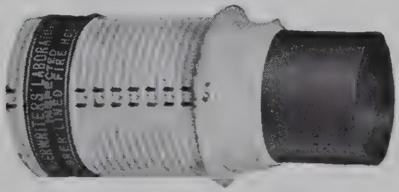
Unlined Linen Fire Hose

Recommended for interior use in preference to a rubber lined cotton hose. The linen hose has no lining to deteriorate with age and will last a great deal longer. Its chief value is for short lines for brief use inside the building. On account of its lightness, compactness and convenience, it can be handled by one man alone. When water is first turned on, the hose will leak slightly, but the fibers will almost immediately expand, and the hose becomes practically watertight.

Couplings are not included in price and must be specified when wanted.

Size.....inches	3/4	1	1 1/4	1 1/2	2	2 1/2
Per Foot......	.....	.....	.....	.....	.....	....

Bull Dog Underwriters' Fire Hose
Single and Double Jacket



Single Jacket hose recommended for inside service in industrial plants where hose is not submitted to high pressures.

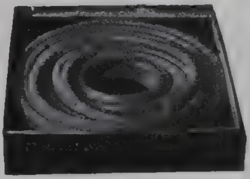
Double Jacket hose recommended for heavy duty in industrial plants, shipyards, railroad terminals, etc. where extra protection of outer jacket is necessary.

Both single and double jacket hose made to specifications of the National Board of Fire Underwriters.

Tube is resistant to water which is slightly acid or contains alkalies. Jacket is circular woven of cotton yarn, the weaving being properly balanced to reduce elongation and twisting to a minimum. Furnished in 50-foot lengths.

	Single			Double				
Size..........in.	1 1/2	2	2 1/2	1 1/2	2	2 1/2	3	3 1/2
Per Foot........	...	...	...	...	...	...	...	...
Press. on Delivery per Sq. In...lb.	300	300	300	400	400	400	400	400

Red Pure Gum Tubing



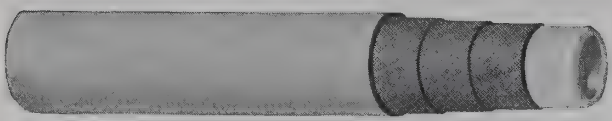
High grade antimony stock.

Furnished smooth or corrugated in all standard sizes in boxes of 50 feet each.

Prices upon application.

Bay State C. I. Tubing

Wrapped Fabric—3 Plies—Mandrel Made



For handling beverages in bottling works, beer cabinets, etc. Also used for light duty air service.

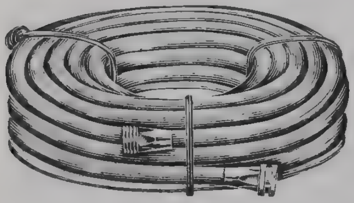
Tube: white, odorless and tasteless. Carcass: multiple plies of strong, lightweight sheeting.

Cover: red; abrasion resistant.

Maximum length, 50 feet.

Size.......inches	**5/16**	**3/8**	**1/2**
No. of Plies	3	3	3
Approx. Outside Diameter.......inches	37/64	41/64	49/64
Max. Working Pressure.......pounds	85	80	50
Approx. Weight per 100 Feet....pounds	12	13½	16½

Amepco Realite Plastic Garden Hose



Fully conditioned to heat and cold. Resistant to abrasion, weather and shock.

Will not crack or kink.

Coupling will not leak, squirt or slip.

With Amertite Solid Brass Coupling

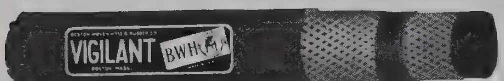
Lgth.	Clear Amber		Trans-parent Green		Opaque Bright Red		Opaque Green		Std. Ship. Box	
Ft.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Wt. Lb.
25	**101**	**$4.45**	**401**	**$4.45**	**201R**	**$3.75**	**201G**	**$3.75**	3	26
50	**102**	**7.95**	**402**	**7.95**	**202R**	**5.95**	**202G**	**5.95**	4	22
75	**103**	**11.95**	**403**	**11.95**	**203R**	**7.95**	**203G**	**7.95**	6	17

With ¾-Inch Heavy Duty Expansion Coupling Opaque Green

No.	**7401**	**7402**	**7403**
Each	**$7.95**	**11.95**	**16.95**
Length.......feet	25	50	75
Standard Shipping Box	2	3	6
Weight per Shipping Box.....pounds	38	38	38

Vigilant Garden Hose

Two Braids
Double Construction
Neoprene Compounded Cover



With two strong braids of two-end yarn.

The ⅝-inch size is furnished with black and green cover on cards in 25 and 50-foot lengths. This size is also available in 500-foot bales.

The ¾-inch size is furnished with black cover only in 250-foot paper wrapped bales of 25 or 50.

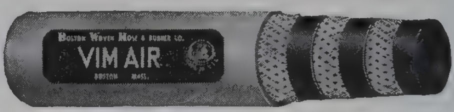
Non-Kink Service Station Air Hose

For garages and service stations. Light, tough, durable, flexible, and non-kinking. A molded braided hose which can be furnished in long lengths. Size, ¼ inch, 2 braid; 25, 50, 75 and 100-foot lengths; 250 to 300-foot reels.

Prices upon application.

Boston Vim Air Hose

Molded Braided Construction



Two-braid hose for general pneumatic tool service.

Three-braid hose for general compressor air service.

Tube resistant to heat and oil lubricants. Multiple braids of cotton yarn impregnated with a friction to bond braids together. Cover is a red rubber compound, resistant to abrasion and sun.

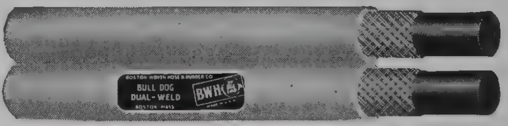
Furnished in continuous bale lengths up to 500 feet.

Size.......in.	**1/4**	**3/8**	**1/2**	**1/2**	**3/4**	**3/4**	**1**
Per Foot	...	...	...	...	...	...	...
No. Braids	2	2	2	3	2	3	3
Working Press. per Sq. In.......lb.	225	200	150	200	125	175	150

Boston Bull Dog Dual-Weld Welding Hose

Single Braid—Mold Cured

Maximum Working Pressure, 200 Pounds

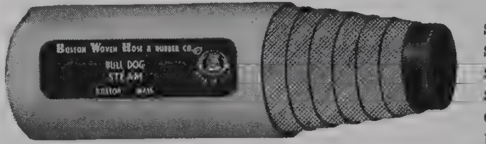


For welding and cutting; used on portable dolly welding units, etc. Two separate hose lines molded into single-acting unit. Vertical braided. Black, non-porous tube not affected by corrosive action of gases; will not scale or peel. Carcass: strong single braid of cotton yarn imbedded in rubber. Cover of red or green resists age and abrasion. Barb shank couplings recommended. Maximum length, 500 ft.

Size.......inches	**3/16**	**1/4**	**5/16**
Approx. Outside Diam., Each Line.inches	7/16	17/32	19/32
Approx. Weight per 100 Feet.....pounds	13	24	30

Bull Dog Steam Hose

Wrapped Duck Construction



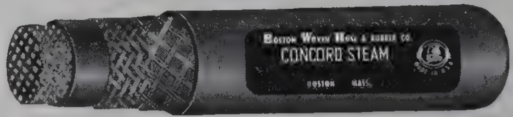
For steam service where saturated steam pressure does not exceed 100 psi. Heavy gage tube especially compounded to resist action of live steam without becoming brittle and cracking.

Carcass built with multiple plies of tightly woven duck. Each ply frictioned and coated with layer of heat-resistant rubber to protect duck against high temperatures and insure adhesion between plies. Cover is heat and abrasion-resistant rubber compound, providing maximum protection to duck plies. Regularly furnished in 50-foot lengths.

Size.......inches	**1/2**	**3/4**	**1**	**1¼**	**1½**
No. of Plies	5	5	6	6	6
Nominal O.D.......inches	1 5/16	1 9/16	1 15/16	2 5/32	2 13/32

Boston Concord Wire Braid Steam Hose

Maximum Working Pressure, 200 Pounds

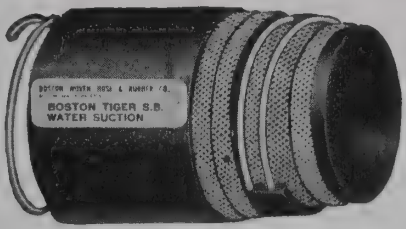


For saturated steam up to 200 pounds. Horizontally braided; mandrel made. Black, heavy-gage tube of heat-resistant rubber, locked by inner wire braid. Carcass: high-tensile stranded steel wire bonded with rubber; outer braid of asbestos, to insulate cover. (Couplings not furnished). Brown, abrasive, heat and weather-resistant cover.

Available in lengths up to 50 feet.

	2-Braid				3-Braid		
Size.......in.	**1/2**	**3/4**	**1**	**1¼**	**1½**	**2**	**2½**
Approx. O. D.......in.	1 15/64	1½	1 25/32	1 15/16	2 7/16	2 29/32	3½
Approx. Wt. per 100 Ft.......lb.	76	98	124	139	213	255	320

Boston Tiger Water Suction Hose



Smooth bore construction. Black tube with plied duck wire inserted reinforcement. Has black cover.

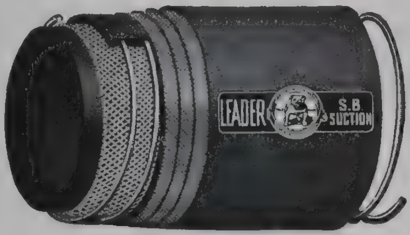
Straight or enlarged ends can be furnished.

Maximum recommended discharge pressure, 40 psi.

Can be furnished in 10, 12½, 15, 20, 25 and 50-foot lengths.

Inside Diameter..........in.	**1½**	**2**	**2½**	**3**	**4**
Nominal Outside Diam...in.	2 5/64	2 37/64	3 7/64	3 51/64	4 56/64
Approx. Wt. per 100 Feet.lb.	89	111	144	223	364

Boston Leader Suction Hose



For diaphragm pumps and all general suction work.

Smooth bore; rubber tube; plies of rubberized fabric; rubber-embedded coppered round metal spiral coil. Supporting wire coils closely spaced.

In sizes from 5 to 12 inches, in all standard lengths.

Prices upon application.

Boston Leader Hard Rubber Suction Hose

Boston Woven Hose & Rubber Co.
LEADER HARD RUBBER
WATER SUCTION
BOSTON MASS

For light water suction service on hand pumps, portable engines and injectors in industrial or agricultural service.

In 50-foot lengths.

Size........................inches	¾	1	1¼	1½
Per Foot........................	....	....	....	....
No. of Plies......................	5	5	6	6

Bull Dog Curb Pump Gasoline Hose

Listed by the Underwriters' Laboratories

UL
BOSTON WOVEN HOSE & RUBBER CO.
BULL DOG
CURB PUMP
BOSTON MASS. U.S.A.

A molded, braided all synthetic construction with static wire.

Size..	¾
Per Foot..	...
No. Braids..	2
O.D.....................................inches	1¼
Weight per 100 Feet..........................pounds	45

Type M-100 Penflex Heavy Duty Four-Wall Interlocked Pressure Hose

Flexible metallic tubing scientifically engineered to fit exact requirements. For handling of oils, hot tar, water or steam, gas and other uses. Highly resistant to wear, absorption, fire. It is vibration-absorbing and is often used as connectors where severe vibration is present as well as where there is motion between source and point of application. Pulsations of pressure, combined with frequent flexure, do not affect its useful life.

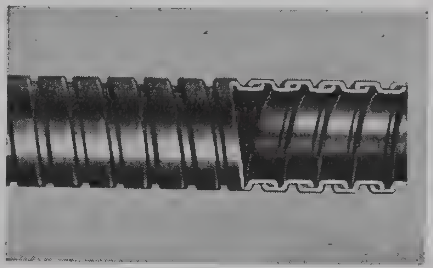
Also available in ball bearing type construction. Stainless steel and other metals are special, prices on application.

	Steel		Bronze				
I.D. In.	Per Ft.	Wt. Lb. per Ft.	Per Ft.	Wt. Lb. per Ft.	O.D. In.	Min. Bending Diam. In.	Metal Gage In.
½	$.65	.35	$1.25	.42	.687	8	.018
¾	.90	.75	2.15	.87	1.00	12	.024
1	1.10	.90	2.50	1.20	1.25	16	.024
1¼	1.30	1.37	3.40	1.56	1.56	20	.029
1½	1.60	1.87	4.30	2.05	1.84	24	.033
2	1.85	2.56	5.60	2.81	2.34	28	.033
2½	2.35	3.90	6.90	3.31	2.84	32	.033
3	2.80	4.00	8.80	4.50	3.38	36	.039

Couplings

	Soldered Couplings		Heat Proof Couplings			Soldered Couplings		Heat Proof Couplings	
I.D. In.	Male Each	Female Each	Male Each	Female Each	I.D. In.	Male Each	Female Each	Male Each	Female Each
½	$1.85	$2.55	$3.05	$4.05	1½	$5.95	$9.60	$8.40	$12.75
¾	2.55	3.50	3.85	5.25	2	7.70	12.40	11.25	16.75
1	3.85	5.45	5.65	7.60	2½	11.80	17.00	17.10	22.35
1¼	4.75	7.35	6.90	9.25	3	14.50	21.00	20.00	28.35

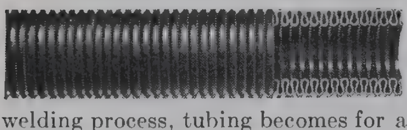
Penflex Flexible Square-Locked Tubing



Furnished in galvanized steel, brass (plain or tinned), bronze or stainless steel; unpacked, cotton cord packed or asbestos packed.

I.D. In.	Unpacked per 100 Ft.	Cotton Cord Packed per 100 Ft.	Asbestos Packed per 100 Ft.	Approx. O.D. In.	Max. Metal Thick. In.
5/32	$5.15	$6.65	$8.40	15/64	.010
3/16	5.30	6.75	8.75	17/64	.010
7/32	5.50	6.85	9.05	19/64	.010
¼	5.75	7.05	9.70	11/32	.010
9/32	5.95	7.30	10.05	3/8	.010
5/16	6.20	7.75	10.45	13/32	.011
11/32	6.30	8.10	11.20	7/16	.011
3/8	6.55	8.55	11.95	½	.011
13/32	6.85	8.85	12.75	17/32	.011
7/16	7.30	9.25	13.60	9/16	.011
½	7.75	9.60	14.45	5/8	.011
9/16	8.30	10.50	15.10	11/16	.011
5/8	8.90	11.90	15.85	¾	.011

No. 907 Penflexweld Flexible All-Metal Tubing

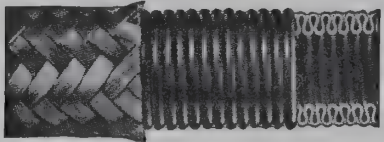


Plain—Uncovered For handling light pressures only. Formed from strip metal. By welding process, tubing becomes for all practical purposes the same as high grade pipe of amply strong wall section.

Write for operating data.

No. 908 Penflexweld Tubing

Standard Braiding



High pressure within tubing sets up two strains, radial and longitudinal. Corrugated walls of tubing over come the former. Certain conditions caused by the longitudinal factor may lead to elongation. For this reason, lengthwise loads are transferred to an outer serving of beamed braid, steel or bronze.

Braiding at both ends of every hose is permanently secured within the couplings, SolSeal or MetSeal.

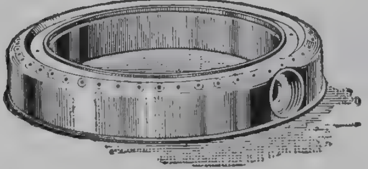
For temperatures up to 250°. Fuse Solseal type, over 250°F. Metseal type.

I.D. In.	Approx. O.D. Over Braid Inches	Practical Bending Radius —Inches— Bronze	Steel	*Approx. Burst. Press. Lb. Per Sq. In.	Approx. Wt., Lb. —Per Foot— Bronze	Steel
5/32	15/32	4⅜	5	12500	.22	.20
3/16	½	5	5¼	11000	.26	.24
¼	9/16	5⅜	5⅞	10500	.33	.30
⅜	13/16	6	7	7000	.52	.47
½	15/16	6½	8	5400	.72	.65
¾	1 11/32	8	10½	3500	1.17	1.04
1	1⅝	9½	13	2000	1.40	1.23
1¼	1 31/32	10½	15	1800	1.67	1.48
1½	2 11/32	12	17½	1650	2.25	1.98
2	2 31/32	14½	22	1150	3.32	2.93

*Bursting pressures may be increased by use of special braids.

Not subject to ordinary mill restrictions on lengths and usually can be supplied in lengths as desired.

No. 5040 Sherman Deluxe Fountain Ring Sprinklers



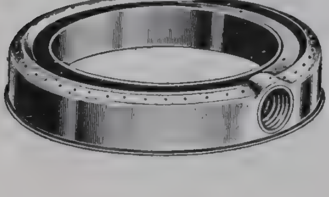
Throws well distributed spray covering 28-foot circle at 40 pounds pressure.

All brass ring sprinkler, 8½ inches in diameter. Inserted hose connection ¾ inch with clean cut threads.

Packed 1 in box, 6 in carton. Weight per dozen, 14⅜ pounds.

No. 5040................................per dozen **$26.40**

Circle All Brass Ring Lawn Sprinklers

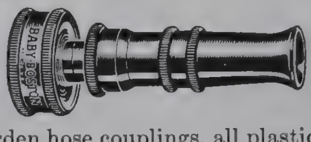


Heavy brass, highly finished. Diam., 8½ in. Packed ½ doz. in ctn.; ½ gr. in master ctn. Wt. ½ doz., 4½ lb.; 6 doz., 60 lb.

Per Dozen..........**$26.40**

With Galvanized Bottom, ...per dozen **22.20**

Baby Boston Garden Hose Nozzles



Will fit all garden hose couplings, all plastic hose. Brass. Spray forms before leaving nozzle. Turn of nozzle gives stream, shower or spray. Has built-in shut-off control.

No. N-4 Nelson Flaring Rose Sprinklers

FLARING ROSE

An ideal, soft spray for newly planted grass, seedlings, delicate foilage, and flowers. The sheet brass face has 102 small perforations which emit a fanlike sheet of tiny jets that are like a gentle spring rain. Easy to handle, efficient, no waste of water. Will not leak. Durable, will stand hard usage. Heavy non-corrosive cast body, die-cast from an alloy which allows a smooth finish. Packed 6 in a box.

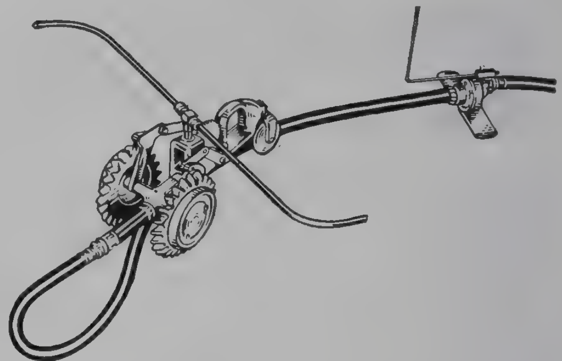
No. N-4, Wt. per Doz., 5 Lb., Enameled.... per doz. **$13.80**

Rubber Hose Washers

Size...in.	**¾**	**1**	**1¼**	**1½**	**2**	**2½**	**3**	**4**
Per Lb...	....	....	....	....	....	....	....	....
I.D...in.	21/32	13/16	1 1/16	1¼	1 13/16	2 3/16	2¾	3 7/16
O.D...in.	1 1/32	1¼	1⅝	1⅞	2⅜	2 13/16	3 9/16	4 5/16

National Walking Lawn Sprinklers

With Automatic Shut-Off



Creeps along under it's own power using hose as a track. Lays down heavy sheet of water over wide course as it travels 20 feet per hour. Covers evenly without waste.

To use, lay out hose through middle of strip it is desired to water and insert automatic shut-off at any coupling in hose, usually about 25 feet from sill cock.

If non-moving sprinkling is desired, flip driving pawls out of engagement.

Automatic shut-off is not furnished with sprinkler and must be purchased at extra cost.

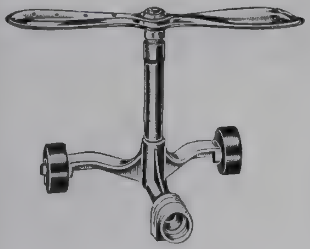
No. A5. For small and medium size lawns using 50 to 100 feet of hose. Sprinkles a 50-foot diameter circle.

No. A5-2. For medium to large lawns using 50 to 125 feet of hose. Sprinkles a 50-foot diameter circle.

No. B3. Heavy duty sprinkler for estates and parks using 75 to 175 feet of hose. Waters a 60-foot diameter circle.

No................................	A5	A5-2	B3
Each................................	**$23.95**	**26.95**	**34.95**
Weight........................pounds	25	30	41
Automatic Shut-Off............................each			**$4.90**

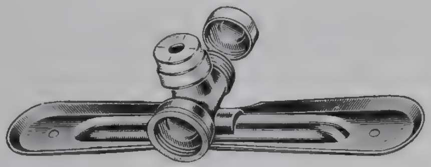
No. N66L Whirling Fairy Lawn Sprinklers



Non-adjustable; fool proof. A labor saver, one setting sprinkles as much as 3 or 4 settings of stationary sprinklers, a 50-foot circle when the pressure is 50 pounds. In small spaces, with water turned low, it turns freely and sprinkles evenly. The long double bronze bearing insures long life. It is self-closing against leakage. Swivel brass hose connections. Height, 11 inches. One in a box; one dozen in a carton. Shipping weight, per dozen, 26 pounds.

No. **N66L**....................................each **$3.95**

Nobby Sprinklers



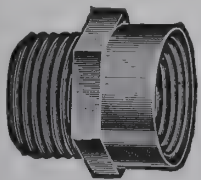
For multiple sprinkling systems or for individual use. No valve adjustment. Built to withstand hard use. Throws an evenly distributed spray over a circle of 25 feet in diameter. Broad sheet metal base 10 inches long prevents tipping over when sprinklers are dragged over the lawn.

Finished in green enamel.

Packed 4 in a box; weight, 72 pounds per gross, 4 end caps in each box.

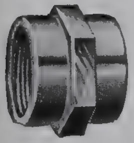
Each.. **$1.15**

No. N-92 Brass Male and Female Hose Bushings



Thread, Inches	Per Dozen
½ I.P.T. Male x ¾ H.P.T. Female	$5.76
½ I.P.T. Female x ¾ H.P.T. Male	5.76
¾ I.P.T. Male x ¾ H.P.T. Female	5.76
¾ H.P.T. Male x ¾ I.P.T. Female	5.76

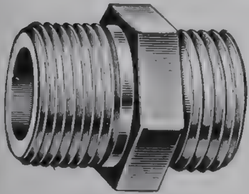
No. 5 Sherman Cast Brass Double Female Nipples



Size, Inch and Thread	Per Dozen
½ I.P.T. (T) x ¾ H.T.	$6.09
¾ I.P.T. (T) x ¾ H.T.	6.09
1 I.P.T. (T) x 1 I.P.T. (S)	18.15

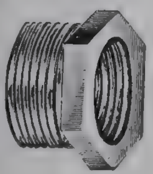
H.T. indicates hose thrd.; S, straight iron pipe thrd.; T, taper iron pipe thrd.

No. N-91 Male Brass Hose Nipples



Thread, Inches			Per Dozen
½ I.P.T.	x	½ I.P.T.	$5.28
¾ H.T.	x	½ I.P.T.	5.28
¾ I.P.T.	x	¾ H.P.T.	5.28
¾ I.P.T.	x	¾ I.P.T.	5.28
¾ I.P.T.	x	1 H.P.T.	8.40
1 Std. T.	x	1 Std. T.	8.40

No. N-94 Brass Hose Bushings

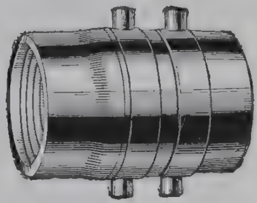


Weight per dozen, 2½ pounds.

Thread, Inches	Per Dozen
¾ I.P.T. Female x 1 I.P.T. Male	$7.92
½ I.P.T. Female x 1 I.P.T. Male	7.92
¾ H.T. Female x 1 H.P.T. Male	7.92

Boston Expansion Ring Couplings

For Mill and Fire Hose



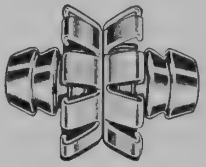
For single and double jacket mill and fire hose.

Specify thread required and type of hose on which couplings are to be used.

Made in 1½, 2 and 2½-inch sizes on single jacket; 1½, 2, 2½, 3 and 3½-inch on double jacket.

Prices upon application.

Perfect Clinching Hose Menders

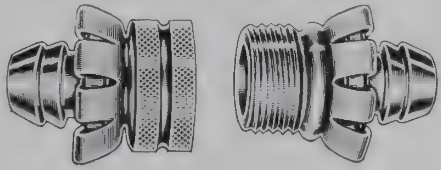


Adjusts itself to varying thicknesses of hose; will not leak; cannot pull out; no tools required but a hammer.

Cannot cut hose. Brass tubes; steel clamps.

Size.......in.	½	⅝	¾	1
Per Dozen....	$2.10	2.10	2.10	6.56

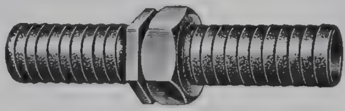
Perfect Clinching Hose Couplings



Wrought brass section. Steel fingers, plated.

Size In.	Rolled Thrd., Doz.	Cut Thrd., Doz.
½	$5.15	.....
⅝	5.15	.....
¾	5.15	.....
1	....	$15.00

Cast Brass Steam Hose Couplings



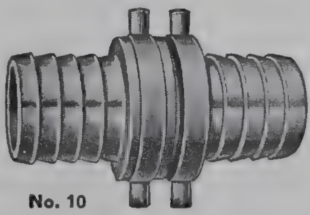
No. 11

Furnished with semi-finished swivels, recessed for washers. Tail-pieces are heavy, extra long with chamfered ends. Furnished with iron pipe thread.

Size In.	Full Sets Each	Half Couplings Female Each	Half Couplings Male Each	Size In.	Full Sets Each	Half Couplings Female Each	Half Couplings Male Each
¼	$1.50	$1.00	$.75	1¼	$2.60	$1.74	$1.30
⅜	1.50	1.00	.75	1½	3.26	2.18	1.64
*½	1.64	1.10	.82	2	4.56	3.04	2.28
*⅝	1.64	1.10	.82	2½	7.80	5.20	3.90
¾	1.64	1.10	.82	3	16.04	10.70	8.02
1	1.96	1.30	.98	...	.....	.....	....

*Furnished with ¾-inch I.P.T. unless ½-inch is specified.

Cast Brass Water Hose Couplings



No. 10

Sizes 1¼, 1½, 2 and 2½ inches have lugs on female half only. Sizes 3, 4, 5, 6 and 8 inches have lugs on both halves.

When ordering always supply thread information to avoid delay.

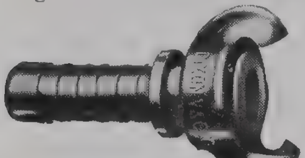
Size In.	Full Sets Each	Half Couplings Female Each	Half Couplings Male Each	Wt. Lb.	Size In.	Full Sets Each	Half Couplings Female Each	Half Couplings Male Each	Wt. Lb.
1¼	$1.92	$1.28	$.96	¾	4	$20.28	$13.52	$10.14	11¼
1½	2.52	1.68	1.26	1¼	5	46.07	30.71	23.04	20
2	3.93	2.62	1.97	2	6	75.47	50.31	37.74	28 1/16
2½	7.20	4.80	3.60	2¾	8	113.31	75.54	56.66	52
3	9.60	6.40	4.80	4⅔	.	....	.....	.....	....

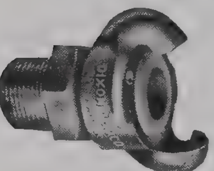
Dixon Air King Quick-Acting Universal Hose Couplings

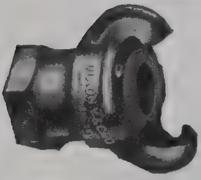
Locking head is identical for all size hose and threaded ends. This permits connection of any two sizes of hose within size range or connection of hose to pipe by use of threaded connections without adapters, bushings, or extra fittings.

An auxiliary locking arrangement is a feature of this coupling. Drilled holes in locking flange come into alignment when any two fittings are connected. Thus, coupling can be securely anchored with cotter pin, wire, nail, etc.

Connection is made by pressing couplings together and making a slight turn. Couplings snap in a firm, secure lock which is leakproof under both pressure and vacuum. Couplings cannot be disconnected while under pressure.







Prices include washer for air or water service.

Hose Ends

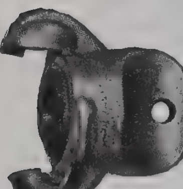
Size In.	Style AKM Malleable Iron No.	Each	Style AKB Bronze No.	Each	Wt. Lb. per 100
3/8	AMH	$1.00	ABH	$1.20	40
1/2	AM-1	1.00	AB-1	1.20	48
5/8	AM-5	1.00	AB-5	1.20	48
3/4	AM-6	1.00	AB-6	1.20	59
1	AM-11	1.00	AB-11	1.20	72

Male Ends

Size In.	Style AKM Malleable Iron No.	Each	Style AKB Bronze No.	Each	Wt. Lb. per 100
1/4	AMB1	$1.00	ABB1	$1.20	40
3/8	AMB	1.00	ABB	1.20	41
1/2	AM-2	1.00	AB-2	1.20	44
3/4	AM-7	1.00	AB-7	1.20	52
1	AM-12	1.00	AB-12	1.20	63

Female Ends

Size In.	Style AKM Malleable Iron No.	Each	Style AKB Bronze No.	Each	Wt. Lb. per 100
1/4	AMC1	$1.00	ABC1	$1.20	41
3/8	AMC	1.00	ABC	1.20	42
1/2	AM-3	1.00	AB-3	1.20	44
3/4	AM-8	1.00	AB-8	1.20	48
1	AM-13	1.00	AB-13	1.20	56

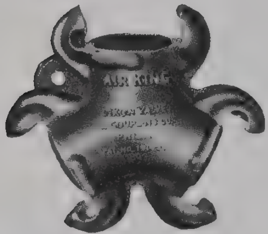


Blank Ends

Used for blocking the line at any coupling point; has no outlet. End opposite coupling head is flat in shape with eye for securing fitting when not in use. Weight per 100, 72 pounds.

No. **AM-0**, Style AKM, Malleable Iron.....each **$1.00**

No. **AB-0**, Style AKB, Bronze............each **1.20**



Triple Connections

Consists of three universal coupling heads in Y form. It provides an extra outlet when connected to the line.

Weight per 100, 100 pounds.

No. **AM-10**, Style AKM, Malleable Iron.....each **$2.20**

No. **AB-10**, Style AKB, Bronze............each **2.50**

Dixon Air King Washers

Designed so that they cannot be blown out of couplings. Easily replaced without the use of tools.

No. AWR-4, for Air or Water

Molded from tough, long-wearing rubber stock. Designed with flanged and cushioned base. Ship. wt. per 100, 2 pounds.

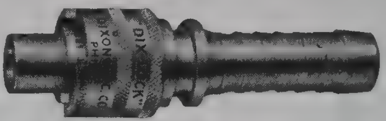
No. **AWR-4**....................................each **$.08**

No. AWS-6, for Steam or Oil

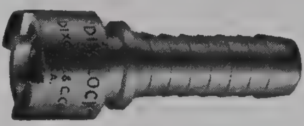
Compounded for synthetic rubber and recommended for all applications involving steam up to 300°F. and oil at ordinary temperatures. Shipping weight per 100, 2 pounds.

No. **AWS-6**....................................each **$.16**

Dix-Lock Quick-Acting Air Hose Couplings



Male Head—Hose End



Female Head—Hose End

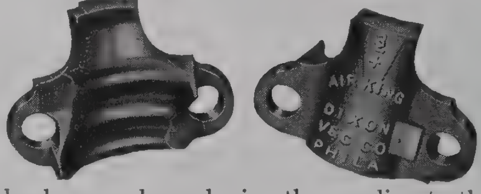
Any Dix-Lock male coupling may be connected to any female coupling, regardless of the size thread or hose shank on either type. Dix-Lock couplings interchange perfectly with Bowes and Dalbo fittings.

Female locking head is rigid member; male connection has locking sleeve and internal spring. Both male and female types are furnished with male or female pipe threads, or with shank for inserting into hose. Specify when ordering.

Size Inches	Male Head, Hose End Style DKB Brass No.	Each	Style DKS Steel No.	Each	Wt. Lb. per 100	Female Head, Hose End Style DKS Brass No.	Each	Style DKS Steel No.	Each	Wt. Lb. per 100
3/8	QB- 2	$2.70	QM- 2	$2.20	50	QB- 21	$2.00	QM- 21	$1.60	33
1/2	QB- 3	2.70	QM- 3	2.20	55	QB- 22	2.00	QM- 22	1.60	36
3/4	QB- 4	2.70	QM- 4	2.20	70	QB- 23	2.00	QM- 23	1.60	50
	Male Head, Male I.P.T.					**Female Head, Male I.P.T.**				
3/8	QB-41	$2.70	QM-41	$2.20	60	QB- 61	$2.00	QM- 61	$1.60	33
1/2	QB-42	2.70	QM-42	2.20	65	QB- 62	2.00	QM- 62	1.60	35
*3/4	QB-43	2.70	QM-43	2.20	70	QB- 63	2.00	QM- 63	1.60	40
	Male Head, Female I.P.T.					**Female Head, Female I.P.T.**				
3/8	QB-81	$2.70	QM-81	$2.20	60	QB-101	$2.00	QM-101	$1.60	41
1/2	QB-82	2.70	QM-82	2.20	65	QB-102	2.00	QM-102	1.60	42
*3/4	QB-83	2.70	QM-83	2.20	70	QB-103	2.00	QM-103	1.60	45

*Also available with 3/4-inch Eastern or Pacific Coast Garden Hose Thread.

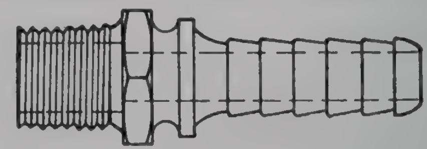
Dixon Air King Clamps



Light weight, compactly designed. Extended fingers engage the collar on coupling or nipple shank, securely anchoring the coupling to the hose. Thoroughly rustproofed by cadmium plating. Furnished complete with square head machine bolts and hex nuts.

No.	Each	Size In.	Fits Hose, O.D. Inches	Wt. Lb. per 100
CD	$.24	3/8	3/4 to 7/8	22
A-4	.31	1/2	1 to 1 3/16	32
A-9	.42	3/4	1 1/8 to 1 5/16	49
A-10	.42	7/8	1 5/16 to 1 1/2	52
A-14	.66	1	1 1/2 to 1 13/16	80

No. 3500 Dixon Steel Hose Nipples

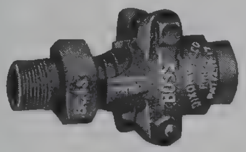


Machined from cold-drawn steel bar, and has a collar in back of hexagon shoulder for clamp or wiring method of attaching hose. Annealed for increased strength.

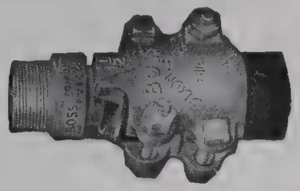
Size Hose In.	Size I.P. Thread Inches	Each	Size Hose In.	Size I.P. Thread Inches	Each	Size Hose In.	Size I.P. Thread Inches	Each
1/4	1/8	$.45	3/8	1/2	$.50	3/4	1/2	$.85
1/4	1/4	.45	1/2	1/4	.50	3/4	3/4	.85
1/4	3/8	.45	1/2	3/8	.50	1	3/4	1.25
3/8	1/4	.45	1/2	1/2	.50	1	1	1.35
3/8	3/8	.45	1/2	3/4	.85	...	...	....

Style MX-16 Boss Male Hose Couplings

Cadmium-Plated—Rustproof
Companion Male Coupling for Style X-34 Ground Joint and Style W-16 Washer Type Female Couplings



MX-16
Male Coupling with I.P.T. —Size ¾ Inch and Smaller 2-Bolt Clamp



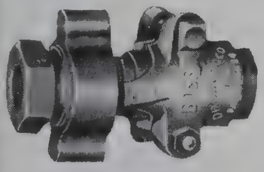
MX-16
Male Coupling with I.P.T. —Size 1 Inch and Larger 4-Bolt Clamp

For high or low pressure service: handling butane, oil, ammonia, for hydraulic hose, steam, air, etc. Complete coupling includes all parts to couple one end of hose.

Hose and I.P.T. Size Inches	Complete Coupling Each	Parts Male Stem Each	 Clamp Each	Weight Pounds Complete Coupling
¼	$.66	$.48	$.18	.23
⅛	.75	.51	.24	.37
½	.91	.55	.36	.65
¾	1.39	.85	.54	1.30
1	1.73	.95	.78	2.60
1¼	2.76	1.32	1.44	3.90
1½	3.36	1.56	1.80	4.70
2	4.92	2.40	2.52	7.50
2½	9.60	4.80	4.80	12.70
3	13.90	7.40	6.50	18.00
4	29.00	13.00	16.00	33.00
6	54.00	21.50	32.50	40.00

Style W-16 Boss Washer Type Female Hose Couplings

Cadmium-Plated—Rustproof



Female Coupling with I.P.T. Spud and Washer Size ¾ Inch and Smaller 2-Bolt Clamp

Female Coupling with I.P.T. Spud and Washer Size 1 Inch and Larger 4-Bolt Clamp

In non-ferrous metals for services prohibiting use of steel and malleable iron. For high and low pressure service on steam, air, water, oil, hydraulic and gas hose.

Hose and I.P.T. Size In.	Complete Coupling Each	Parts Stem Each	 Wing Nut Each	 Female Stud Each	 Clamp Each	 Asbestos Washers 100	 Leather Washers 100	Wt. Lb. Complete Coupling
¼	$1.14	$.30	$.30	$.36	$.18	$.96	$2.58	.38
⅜	1.32	.36	.36	.36	.24	1.20	3.12	.57
½	1.65	.45	.42	.42	.36	1.98	3.72	1.00
¾	2.80	.85	.72	.69	.54	3.00	10.08	2.80
1	3.10	.91	.72	.69	.78	3.00	10.08	3.60
1¼	5.34	1.50	1.20	1.20	1.44	3.42	10.32	6.30
1½	5.76	1.56	1.20	1.20	1.80	3.60	10.32	6.80
2	8.82	2.22	1.92	2.16	2.52	5.28	17.10	10.70
2½	16.98	4.50	3.60	4.08	4.80	6.84	45.24	19.00
3	21.80	5.40	4.80	5.10	6.50	7.56	72.90	26.00
4	46.50	9.00	9.25	12.25	16.00	8.58	80.34	49.00
6	104.00	28.50	15.50	27.50	32.50	18.00	130.00	58.00

Alternate Spuds

Hose.....in.	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Male.....ea.	$.54	.60	.72	1.08	1.08	2.10	2.22	3.36	5.88	8.00
Double...ea.	...	...	$.84	1.44	1.44	2.40	2.40	4.32	8.16	11.00

Diamond G Multi-Clamp Hose Clamps

For industrial use.

Installs on any hose in any position. Heat treated band allows its use on high pressure water, pneumatic and hydraulic installations. Made of galvanized steel mechanically held and securely welded. Usable many times.

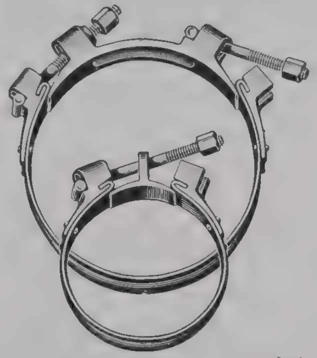
Worm-type, self-locking screw assures uniform instant adjustment. Continuous gear action solid band prevents leakage or unequal pressure at any point. Band has variable take-up for standard or heavy hose.

When ordering, determine outside diameter of hose needed and select clamp on this basis to insure proper fit. Screw driver or tab turn; for screw driver mark S on order.

G.H.C. No.	QS-100-M No.	Per 100	I.D. Inches	O.D., Inches Maximum	 Range
1	4	$30.00	¼	*¾	9/16— ¾
2	6	30.00	5/16	¾	9/16— ¾
3	6	30.00	⅜	¾	9/16— ¾
4	8	30.00	½	15/16	⅝— 15/16
5	10	30.00	⅝	*1 1/16	11/16—1 1/16
6	12	31.00	¾	1⅛	¾—1⅛
7	16	31.00	⅞	*1½	15/16—1½
8	16	31.00	1	1½	15/16—1½
9	16	31.00	1⅛	1½	15/16—1½
10	20	32.00	1 3/16	1¾	1¼—1¾
11	24	32.00	1¼	2	1½—2
12	28	33.00	1½	*2¼	1½—2¼
13	32	33.00	1¾	2½	1¾—2½
14	36	35.00	2	2¾	2 —2¾
15	40	35.00	2¼	*3	2¼—3
16	44	38.00	2½	3¼	2½—3¼
17	48	38.00	2¾	3½	2¾—3½
18	52	41.00	3	*3⅝	3 —3⅝

*Purchase of six sizes indicated covers outside diameter range 9/16 to 3⅝ inches. Larger sizes on order.

King Cadmium Plated Dredge Sleeve Clamps



King Dredge Sleeve Clamps have sturdy, malleable iron bolt lugs and steel band. All stress, when pulling on bolts, is taken care of by the loop connection of steel band in the extra heavy lugs.

The extra long double tongue saddle supported by the bolt provides a solid surface for the clamp to slide upon, and also permits the bolt lugs to be set far back and low. These features permit the clamp to be pulled up to the limit of the strength of the ¾-inch bolt used on Style SB and ⅞-inch bolt used on Style DB.

One side of the bolt lug is provided with a slot; when T head bolt is loosened, it can be lifted. This removes any danger of losing nuts, bolts or any part of the clamp.

Slotted side of the bolt lug is countersunk to prevent bolt from slipping out when pulling up on nut.

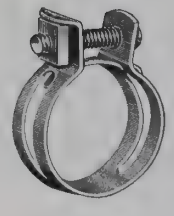
Style SB—Single Bolt

No.	Each	Width of Clamp In.	Fits Sleeves O.D., In.	No.	Each	Width of Clamp In.	Fits Sleeves O.D., In.
4½	$18.00	2¼	9½ –10 7/16	8	$18.00	2¼	13 –13 15/16
5	18.00	2¼	10 –10 15/16	9	18.00	2¼	14 –14 15/16
6	18.00	2¼	11 –11 15/16	10	18.00	2¼	15 –15 15/16
7	18.00	2¼	12 –12 15/16	..	......	...	....

Style DB—Double Bolt

No.	Each	Width of Clamp In.	Fits Sleeves O.D., In.	No.	Each	Width of Clamp In.	Fits Sleeves O.D., In.
11	$23.00	2½	16 –17¼	18	$26.50	2½	25 3/16 –26¾
12	23.00	2½	17 5/16 –18 9/16	19	26.50	2½	26 13/16–28⅜
13	24.00	2½	18⅝ –19⅞	20	29.00	2½	28 7/16 –30
14	24.00	2½	19 15/16–21 3/16	21	29.00	2½	30 1/16 –31⅝
15	24.00	2½	21¼ –22½	22	31.00	2½	31 11/16–33¼
16	25.00	2½	22 9/16 –23 13/16	23	31.00	2½	33 5/16 –34⅞
17	25.00	2½	23⅞ –25⅛	..	......	...	....

No. 1923 Allenco Galvanized Steel Hose Clamps



Made of heavyweight, best quality strip steel.

Heavily galvanized to resist rust.

Top of clamp is formed to prevent nut from turning.

For Water Hose

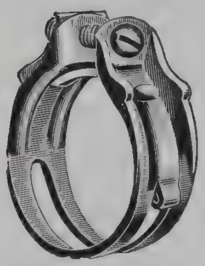
Size In.	Ply	I.D. In.	Per Doz.	Size In.	Ply	I.D. In.	Doz.	Size In.	Ply	I.D. In.	Per Doz.
3/16	3	7/16	$.66	¾	4	1 3/16	$.78	1¾	4	2⅜	$3.30
¼	3	½	.66	¾	5	1¼	.78	2	3	2 7/16	3.44
⅜	2	9/16	.66	1	2	1 5/16	1.28	2	4	2 9/16	3.44
⅜	3	⅝	.66	1	3	1⅜	1.28	2	5	2 11/16	3.44
⅜	4	11/16	.66	1	4	1 7/16	1.28	2	*	3	4.58
½	2	¾	.70	1	5	1½	1.28	2¼	3	2¾	4.20
½	3	⅞	.70	1¼	2	1⅝	2.42	2¼	4	2 13/16	4.20
½	4	15/16	.70	1¼	3	1 11/16	2.42	2½	3	2 15/16	4.58
½	5	1	.70	1¼	4	1 13/16	2.42	2½	4	3	4.58
⅝	2	1	.78	1¼	5	1⅞	2.42	2½	5	3⅛	4.58
⅝	3	1 1/16	.78	1½	3	2	2.80	2¾	4	3¼	5.86
⅝	4	1⅛	.78	1½	4	2⅛	2.80	3	3&4	3½	7.26
¾	2	1 1/16	.78	1½	5	2 3/16	2.80	...	...	...	....
¾	3	1⅛	.78	1¾	3	2¼	2.80	...	...	...	....

For Steam Hose

Size In.	Ply	I.D. In.	Per Doz.	Size In.	Ply	I.D. In.	Per Doz.	Size In.	Ply	I.D. In.	Per Doz.
½	4	1 1/16	$1.24	1	5	1¾	$2.52	1½	6	2⅜	$3.54
½	5	1 3/16	1.24	1	6	1 13/16	2.52	2	4	2⅝	5.48
½	6	1¼	1.24	1¼	4	1 15/16	2.88	2	5	2¾	5.48
¾	4	1⅜	1.58	1¼	5	2	2.88	2	6	2⅞	5.48
¾	5	1 7/16	1.58	1¼	6	2 1/16	2.88	2¼	4	2 15/16	6.10
¾	6	1½	1.58	1½	4	2¼	3.54	2¼	5	3	6.10
1	4	1 11/16	2.52	1½	5	2 5/16	3.54	2¼	6	3 1/16	6.10

*Suction.

Brass Hose Clamps



Made of heavy wrought brass. Rustproof clear through.

Tongue runs in channel holding it close to hose and making a uniform grip. Band portion is pliable, grips tight, and can be opened up, removed, and used again.

Stiff ears cannot pull together at top when tightened, and also form a perfect nut lock.

Heavy shoulder engages vise jaws, permitting clamp to be pulled tight.

Lawn and Air Hose Clamps

Size In.	Hose Ply	Per Doz.	I.D. Open In.	Doz. in Ctn.	Wt. Lb. per Ctn.	Size In.	Hose Ply	Per Doz.	I.D. Open In.	Doz. in Ctn.	Wt. Lb. per Ctn.
3/16	3	$1.10	7/16	2	⅜	½	2	$1.10	⅞	2	⅞
¼	3	1.10	½	2	½	½	3	1.10	15/16	2	1
¼	4	1.10	9/16	2	½	⅝	3	1.44	1 1/32	2	1⅛
⅜	2	1.10	⅝	2	½	⅝	4	1.44	1 3/32	2	1⅛
⅜	2½	1.10	11/16	2	⅝	¾	3	1.44	1 3/16	2	1¼
⅜	3	1.10	¾	2	⅝	¾	4	1.44	1¼	2	1⅜

Water Hose Clamps

1	2	$2.70	1 11/32	2	3
1	3	2.70	1 7/16	2	3
1	4	2.70	1 17/32	4	7½
1¼	3	3.35	1 21/32	4	7
1¼	4	3.35	1 13/16	4	7⅝
1½	3	4.00	1 15/16	3	7½
1½	4	4.00	2 1/16	3	7¾
2	3–4	5.35	2 9/16	2	6¼
2¼	3–4	8.65	2⅞	1	4
2½	3–4	9.30	3 1/16	1	4⅛
3	3–4	13.30	3¾	1	6

Steam Hose Clamps

¾	3	$2.70	1 7/16	6	9
¾	4	2.70	1 17/32	4	6⅝
1	3	3.35	1⅝	4	7
1	4	3.35	1 21/32	4	7
1¼	3–4	4.00	1 15/16	3	7½
1½	3–4	4.65	2 7/32	2	8¼
1½	5	5.35	2 13/32	2	5⅞
2	3–4	7.35	2 11/16	2	6¼
2	5	8.65	2⅞	1	4⅛
2½	3–4	11.30	3¼	1	5
2½	5	12.65	3 9/16	1	5½

Band-It Clamps

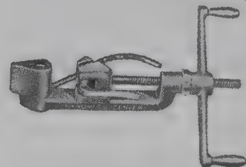
BAND-IT
STEEL BAND
BAND-IT CO.
DENVER, COLO.

Clamps of all diameters can be formed from a continuous roll of Band-it stainless steel or Hi-Carbon steel band and buckles using the Band-It tool.

Will handle any permanent or emergency clamp job from ½ inch to 30 feet in diameter. Stops leaks, repairs, conserves and extends the usefulness of hose, steel pipe, tanks, electrical cable and wooden beams.

Four widths of steel bands furnished in 100-foot rolls; the buckles in boxes of 100 (except Scru-Lokt); all sizes are easily applied with the one Band-It tool.

Band-It Tools



Applies all widths of Band-It bands. Furnished complete with ball bearing.

Weight, 4 7/16 pounds.

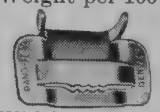
Each	$24.00
Ball Bearing Only	.80

Band-It Stainless or Hi-Carbon Steel Bands

Put up in 100-foot rolls.

Width.....inches	⅜	½	⅝	¾
Stainless Steel.....per foot	$.12	$.16	$.20	$.24
Hi-Carbon Steel.....per foot	.06	.08	.10	.12
Weight per 100 Ft.....pounds	3½	5 5/16	6¾	8 7/16

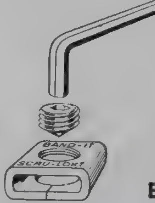
Band-It Stainless or Hi-Carbon Steel Buckles



Packed in boxes of 100.

Width.....inches	⅜	½	⅝	¾
Stainless Steel.....each	$.12	$.16	$.20	$.24
Hi-Carbon Steel.....each	.06	.08	.10	.12
Weight per 100.....pounds	13/16	2 1/16	2⅝	3 3/16

Band-It Scru-Lokt Buckles—For Close Quarters



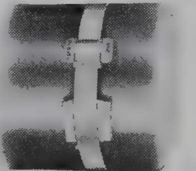
Used without rolling tool over. Width ½ and ¾ inch. Use ⅜ and ½-inch band with ½-inch Scru-Lokt buckles—⅝ and ¾-inch band with ¾-inch Scru-Lokt buckle. Hi-Carbon steel only.

Width.....inches	½	¾
Each	$.30	.40
Weight per 25 Buckles.lb.	½	13/16

Band-It Close Quarter Tension Screw Nut

Replaces tension handle of tool. Tension is applied by turning nut with wrench. Weight, 3/16 pound.

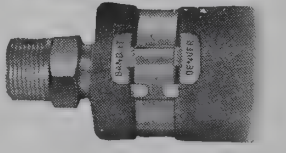
Each.....$1.50



Band-It Used as a Pipe Repair Clamp

Repairs leaks or splits in any diameter pipe or tank.

Packing is placed over leak and under band. No need to disconnect pipe or tank.

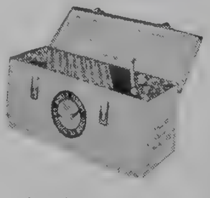


Band-It Used as a Hose Clamp

For all types of pressure and suction hose.

Hose cannot be damaged by flat Band-It band. Clamps hold old, oil-soaked hose efficiently.

Band-It Clamp Warehouses



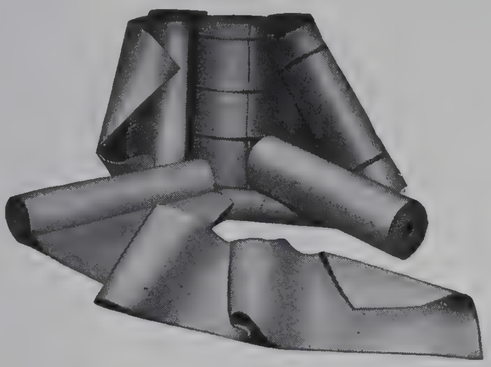
Holds tool, 800 feet Band-It band and 900 Band-It buckles in either stainless or hi-carbon steel, for industrial pressure clamps any diameter.

Size of kit: Length, 22⅝ inches; height, 10 inches; and width, 8 inches—occupies approximately one cubic foot of space.

Available full, half-full, or empty.

	Full	Half Full	Empty
Approx. No. of Clamps To Be Made	900	450	.....
Stainless Steel.....each	$344.50	$193.00	$40.00
Hi-Carbon Steel.....each	200.50	121.00	40.00
Weight.....pounds	89 5/16	55 5/16	21⅛

Cloth Insertion Rubber Sheet Packing



Recommended for use with water which is cold or merely warm at pressures up to 300 pounds per square inch or for air which is practically free from oil at pressures up to 100 pounds and for low pressure steam.

Made in two grades, with cloth insertion, cloth one side or cloth both sides.

Cloth Inserted Sheet has one ply of cloth for each 1/16 inch thickness.

Cloth One Side Sheet has one ply of cloth for each 1/16 inch thickness and additional ply of fabric on one surface.

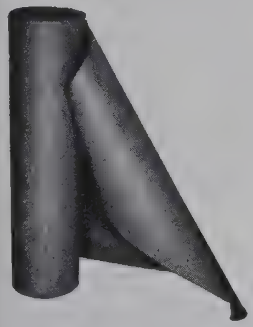
Cloth Both Sides Sheet has one ply of cloth for each 1/16 inch thickness and has additional plies of cloth on both surfaces.

Weight per Square Yard

Thickness.................inches	1/16	3/32	1/8	3/16	1/4
Cloth Inserted............pounds	5¼	8	10½	16	21
Cloth One Side............pounds	5¼	8	10½	16	21
Cloth Both Sides..........pounds	5¼	8	10½	16	21

Prices upon application.

Red Sheet Packing



Will pack an air, steam, hot or cold water joint equally well. It is a non-conductor. Particularly adapted to packing expansion or steam joints, as it does not burn or char.

Joints should be faced with plumbago, lamp black or chalk.

Thickness.......inch	1/32	1/16	3/32	1/8	3/16	1/4
Per Pound...........	......	......	......	......	......	......
Wt. per Sq. Yd....lb.	3⅛	6½	9⅜	12⅝	17⅛	21⅝

Red and Black Asbestos Wire Inserted Sheet Packing

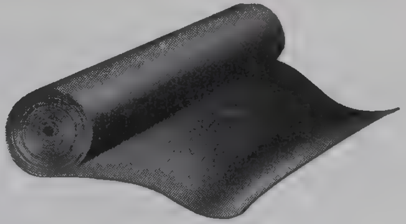
Red and black sheet packing is a high pressure asbestos sheet packing, graphited on one side, and painted red on the other.

Commonly used in places where it is sometimes desirable to break a joint without removing the gasket and in the automobile industry. It is graphited to prevent the gasket from following the flange when moved.

Made in 1/16 and 1/8-inch thickness.

Prices upon application.

Quaker Rubber Sheet Packing



Rubber sheet packing is recommended for cutting valves, washers, marine and industrial gaskets, for ammonia, brine, and chemical services.

A sheet or valve gum packing made in any quality to meet specific requirements in thicknesses 1/16 to 3/16-inch inclusive in 100 and 200-lb. rolls; ¼-inch up in slabs 29 ft. long, approximately 36 in. wide; or in quantity and size specified.

When ordering, state the purpose for which the material ordered is to be used.

		Approx. Wt. per Square Yard in Lb.			
		Thickness, Inches			
No.	Brand	1/16	1/8	1/4	1/2
385	Federal Navy Sheet.....	4⅜	8¾	17½	35
387	Ceylon Sheet...........	2⅞	5¾	11½	23

No. 60 J-M Service Sheet Packing

For packing parallel surfaces of flanges against steam, air, water, ammonia, oil and various acidulated, alkaline or other chemical solutions.

Made of long fiber asbestos and special heat-resisting compounds.

Standard sheets, 36x63, 54x63, 36x126, 54x126, and 108x126 inches. Furnished in 1/64, 1/32, 1/16 and 1/8-inch thicknesses except that 108x126-inch sheet is not furnished in 1/64-inch thickness.

Thickness......................in.	1/64	1/32	1/16	1/8
Approx. Wt. per Sq. yd........lb.	1.34	2.67	5.33	10.67

Vellumoid Sheet Packing

Strong vegetable fiber sheet, chemically treated for use as gaskets on oil, gasoline, grease, air and continuous water applications. Contains no rubber. Has high tensile and tearing strength. Cuts easily; can be tapped out with a lead or brass hammer.

Furnished in sheets, 36x36 inches or 36x40 inches; also in rolls 36 inches wide.

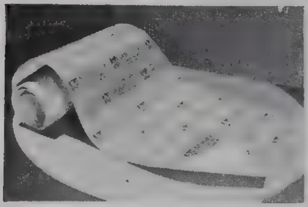
			Standard Rolls		
No.	Per Sq. Yd.	Thickness Inches	Full Rolls Yards	Small Rolls Yards	Wt. Lb. per Sq. Yd.
1	**$.44**	.. (.006)	50	25	.2
2	**.88**	.. (.010)	50	25	.4
3	**1.10**	1/64 (.015)	50	25	.65
4	**1.65**	.. (.021)	50	25	.8
5	**2.20**	1/32 (.032)	50	25	1.25
..	**3.40**	3/64 (.050)	50	25	2.
6	**4.40**	1/16 (.062)	25	15	2.4

Sheets 36x36 Inches

Thickness...........in.	3/32 (.094)	1/8 (.125)	1/4 (.250)
Per Sq. Yd............	**$6.90**	**9.10**	**18.35**
Wt. Sq. Yd..........lb.	3.5	5.	10.

No. 711 J-M Seigelite Sheet Packing

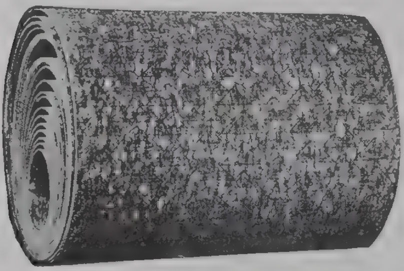
For packing flanges or joints against gasoline, benzine, oil, greases, and hot or cold water. Made of a fibrous material having a very high tensile strength. When immersed in water or other fluids it becomes extremely tough.



Furnished in 25 or 50-yard rolls, 36 and 48 inches wide; in sheets, 36x48 inches ⅛-inch thick.

Thickness..........inches	.01	1/64	.02	1/32	1/16	⅛
No. **711**........per sq. yd.	...	...	...	...	...	....
Approx. Weight per Square Yard............pounds	.4	.65	.8	1.4	2.8	5.71

Durabla Homogeneous Compressed Asbestos Sheet Packing



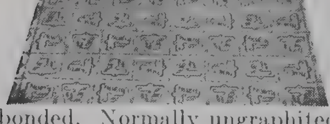
Suitable for gaskets for all the temperature pressure combinations developed in connection with oil and all refrigerants, as well as steam, water, gasoline, ammonia, acids, alkalies, and volatile vapors.

Its homogeneous construction makes it dependable. It is rolled into sheets by building up to gage a mixture of carded asbestos-fiber with a small amount of Special Compound. Has a uniform density, thickness, and asbestos distribution.

The 1/16-inch sheet has a yield point under compression, of 44,000 pounds per square inch. It has a specific gravity of 1.92.

Thickness Inches	Size of Sheet Inches	Number Sheets per Roll	Number Rolls per Case	Approx. Wt., Lb. per Case
1/64	48x144	20	2	290
1/32	48x144	10	2	290
	60x144	10	2	380
	72x144	10	1	220
1/16	48x144	5	2	290
	60x144	5	2	380
	72x144	5	1	220
	120x144	5	1	365
⅛	48x144	4	2	472
	60x144	4	1	304
¼	36x 72	Flat	4 Sheets	176

No. 2900 Palmetto Supersheat Compressed Asbestos Sheet Packing



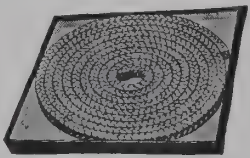
Flange and joint sheet packing for super-heated and saturated steam at all pressures and temperatures. Heat, chemical and pressure resistant. Compressible resilient and homogenous. Long-fiber asbestos, pressure bonded. Normally ungraphited. May be obtained graphited on one or both sides.

	Thickness, Inches											
	1/64			1/32			1/16			⅛		
Sheet Size Inches	Per Lb.	Sheets per Roll	Roll Wt., Lb.	Per Lb.	Sheets per Roll	Roll Wt., Lb.	Per Lb.	Sheets per Roll	Roll Wt., Lb.	Per Lb.	Sheets per Roll	Roll Wt., Lb.
42x60	**$1.00**	10	25	**$.89**	10	50	**$.84**	10	100	**$.84**	5	010
60x63	**1.00**	10	37½	**.89**	10	75	**.84**	10	150	**.84**	5	150
60x126	**1.00**	5	37½	**.89**	5	75	**.84**	5	150	**.84**	3	180

Hemp and Jute Packing

American Hemp Packing..................	per pound	....
Italian A Hemp Packing..................	per pound	....
Italian B Hemp Packing..................	per pound	....
Italian AA Hemp Packing.................	per pound	....
Jute Packing, for Calking.................	per pound	....

Square Flax Packing



Made of pure, long fiber flax, possessing great strength. Contains pure lubricants and is without hemp, jute, tow or any gritty substances.

Sizes, ¼ to 3 inches.

Per Pound ....

Cotton Candle Wick

For packing small valve stems, etc. Carefully manufactured of cotton specially selected for the purpose.

Furnished in ⅛ and ¼-pound balls.

Per Pound.. ....

No. 1100 Palmetto Pelro Self-Lubricating Packing

For Solvent Service

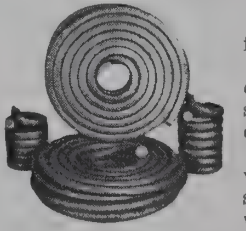
Each strand lubricant-impregnated with a compound developed for solvent service which is neither soluble nor miscible in chlorinated hydrocarbons, petroleum solvents or coal tar derivatives. Lubricant sizes packing, preventing any capillary seepage. Cannot be flushed or worked out by solvents.

Made in sizes 1/16, ⅛, 3/16, ¼, 5/16, ⅜, 7/16, ½, 9/16, ⅝, 11/16, ¾, 13/16, ⅞, 15/16, 1, 1⅛, 1¼, 1⅜, 1½, 1⅝, 1¾, 1⅞ and 2-inch.

Put up in dustproof boxes as follows: 1-lb. spools 1/16 to ½ in. incl.; 5½-lb. boxes in sizes ¼ to 1 in. incl.; 13-lb. boxes in sizes 1⅛ to 2 in. and 25, 50 and 100-lb. reels.

No. **1100** ....per pound **$2.85**

Palmetto Braided Packing



For air, steam, water, and neutral fluid service on reciprocating pumps (both steam and liquid rods), valves of all types, air compressors, rotary steam joints, expansion joints, and centrifugals pumping abrasives.

High tensile 12 cut Canadian white asbestos yarn. Each strand separately lubricant-impregnated with a special Palmetto compound, then twisted and braided. Remains pliable and does not harden under severest temperatures and pressures. Will not score rods or shafts. Furnished in round or square form, in sizes ⅛ to 1-inch by 16ths and 1 to 2 inches by ⅛ths.

Put on 1-pound spools in sizes ⅛ to ½ inch inclusive, and in 5½-pound boxes in sizes ⅛ to 1 inch inclusive. Also furnished on reels at $.05 less per pound.

No. **1000**, Square..........................	per pound	**$2.58**
No. **1020**, Round...........................	per pound	**2.58**

No. 1010 Palmetto Twist Packing

For air, steam, water and neutral fluids. Used to pack a variety of sizes of small valves, shafts and rods of small pumps and similar apparatus.

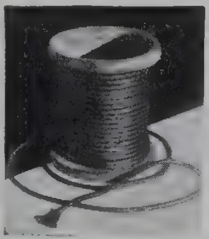
Structure of high grade, high tensile, uniformly twisted Canadian white asbestos yarn. Each strand lubricant-impregnated with a special compound.

Packing may be unstranded right on job. Each strand is a perfect packing in itself. Will not harden or bind valve stems or pumps shafts.

Size......inches	1/16	⅛	3/16	¼	5/16	⅜	7/16	½
Per Pound......	$2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58
Approx. No. Feet	194	83	55	27	23	13	9	9

Also available in sizes up to 1 inch inclusive.

J-M Mogul Coil Packing



No. C193 Twisted
No. C222 Braided Round
No. C223 Braided Square

For packing small rods, valve stems, etc.

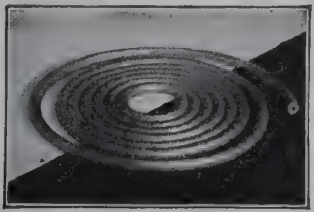
Furnished in continuous lengths, on reels weighing 5, 10, 25 and 50 pounds. Also furnished on 1-pound spools for ⅛ to ½-inch sizes.

Approximate Weight of 100 Linear Feet

Size.......in.	⅛	3/16	¼	5/16	⅜	½	⅝	¾	⅞	1
No. C193..lb.	1	2½	4	5½	8	13	21	32	36	50
No. C222..lb.	1	2	3½	5¼	7	12½	20	28	40	53
No. C223....	..	3½	5¼	7	12½	20	28	40	53	67

Prices upon application.

J-M Universal Rod Packing



No. C-32. Coil Style

For packing rods and outside-packed plungers where space between rod and box is ¼ inch or more—against steam, air, water and various fluids.

Made of asbestos and cotton fabrics, which have been treated with rubber cements, built up together and wrapped around a rubber core.

This packing is regularly furnished in spiral form, Style No. S-32. Also available in coil form, Style No. C-32 and ring form, Style No. R-32.

Spiral Style No. **S-32**.—Furnished in boxes, each containing one length of packing 12 feet long.

Coil Style No. **C-32**.—Furnished in 12½-foot lengths.

Size..................inches	¼ to ½	⅝ to ¾	⅞ to 1
Weight..............pounds	5 to 6	8 to 10	**12 to 14**

Ring Style No. **R-32**.—Unless otherwise specified rings will be packed in boxes containing the following weights:

Diameter Rod.........in.	1 to 2	2 to 3	3 to 4	Over 4
Wt. per Box...........lb.	5	10	15	20

Approximate Weight of 100 Linear Feet

Size...............inches	¼	5/16	⅜	½	⅝	¾	⅞	1
Weight...........pounds	5	8	10	17	24	32	43	61

Prices upon application.

J-M Asbestos Rope Packing

Twisted

No. 4200

No. 4200 for general service. Made of pure felted asbestos wick.

No. 4196 for ordinary conditions. Made of commercially pure roving type asbestos wick.

No. 4194 acid resisting. Made of pure blue African Crocidolite asbestos wick.

No. 4210 plain. Made of pure felted asbestos.

No. 4211 rubber coated. Made of plain asbestos rope coated with rubber.

No. 4212 copper jacketed. Made of plain asbestos rope covered by copper wire.

Sizes ⅜, 7/16, ½, 9/16, ⅝, ¾, ⅞ and 1-inch. Furnished in 10, 25 and 50 pound coils.

Braided

No. 566

No. 566 round. Made of commercially pure asbestos yarn over a core of commercially pure twisted asbestos rope. In sizes ⅛ to ¾ inch, inclusive, furnished with one braided jacket; sizes ⅞ and larger, with two braided jackets.

No. 787 square. Made with the same construction and of the same material as No. 566, but is calendered, after braiding, to square cross-section. In sizes 3/16 inch and up.

No. 702 round. Made of commercially pure asbestos yarn braided into jackets, one over the other. In sizes ⅛ inch and up.

No. 733 square. Made with the same construction and of the same material as No. 702, but is calendered to square cross-section. In sizes 3/16 inch and up.

Plaited

No. 580 square. Made from commercially pure asbestos yarn. In sizes 3/16 inch and up.

No. 581 square. Made with the same construction and of the same material as No. 580 except that the strands of asbestos yarn contain fine copper wire. In sizes 3/16 inch and up.

No. 857 round. Made by braiding one or two jackets of pure asbestos yarn over a core of twisted pure asbestos rope. In sizes ⅛ to ¾ inch with one braided jacket; sizes ⅞ and larger with two braided jackets.

No. 869 square. Made with the same construction and of the same material as No. 857, but is calendered to square cross-section. In sizes 3/16 inch and up.

No. 788 round. Made of jackets of pure asbestos yarn braided one over the other. In sizes ⅛ inch and up.

No. 873 square. Made of the same construction and of the same material as No. 788, but is calendered to square cross-section. In sizes 3/16 inch and up.

Nos. 787, 733, 873 and 869 can also be furnished rectangular in minimum thicknesses of 3/16 inch and in widths not greater than twice the thickness.

Round styles furnished in 10, 25 or 50 pound coils; square styles furnished in 10, 25 or 50 pound reels.

J-M Asbestos Wick Packing

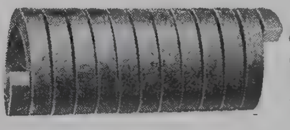
This asbestos wick is for packing small valve stems, etc.

A good grade of twisted wick. Made of long fiber asbestos.

Put up in ¼, ½, and 1-pound balls, ready for use.

Prices upon application.

Spiral Piston Packing

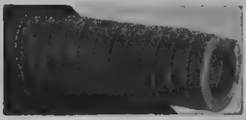


For packing rods against medium pressure steam and hot or cold water. Made from duck, held together by a rubber compound of unusual strength and quality. Thoroughly lubricated and graphited. Furnished in sizes ⅛ to 1¼-inch.

Per Pound.................. ....

J-M Besta-Monia Packing

Spiral Style No. S-172; Ring Style, No. R-172
Ring, Sectional Cut, No. R-172-SC
Ring, Diagonal Cut, No. R-172-DC



No. S-172

For ammonia service on reciprocating rods and plungers.

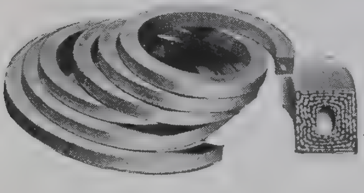
Made of plies of first quality duck frictioned with a special rubber compound, lubricated and graphited.

Size......in.	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
Per Pound..	....	....	....	....	....	....	....	....	....
Wt. 100 Ft. ....lb.	2½	4	6½	8¾	15	27	36	48	60

Ovalhole Spiracoil Hollow Center Packing

Recommended for steam up to 125 pounds, hot water rods, outside packed plunger pumps, elevator plungers, ammonia compressors, etc.

Style 1121—Spiral and Coil Combined



Wrapped construction, made from cotton duck with strong long tooth rubber friction.

Expands enough to stop leakage on worn rods and plungers because all excess expansion goes to the hole.

The oval shape of the hole prevents collapse in the stuffing box.

Each Spiracoil contains exactly 12 feet. Sizes ¼ to ⅝ inch inclusive are boxed 48 feet per box; 11/16 and ¾ inch, 36 feet; over ¾ inch, 24 feet.

Style 31

Is the ring form of Style 1121. Carefully made to fit the stuffing box. Joints are beveled unless otherwise specified.

Style 41 For Top or Bottom Ring

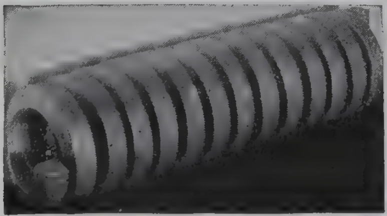
A flat ring with a step-joint. It is cut from ⅜-inch thick slab stock made from the same material as Style 1121 and it is used in combination sets.

Sizes and Prices

Size In.	Per Ft.	Size In.	Per Ft.	Size In.	Per Ft.	Size In.	Per Ft.
1/4	$.44	9/16	$1.74	7/8	$4.04	13/16	$7.44
5/16	.66	5/8	2.10	15/16	4.80	1 1/4	7.80
3/8	.84	11/16	2.50	1	5.00	15/16	8.80
7/16	1.08	3/4	2.90	1 1/16	5.58	1 3/8	9.44
1/2	1.40	13/16	3.42	1 1/8	6.54	1 1/2	11.00

Larger sizes on request.

J-M Cross Diagonal Packing



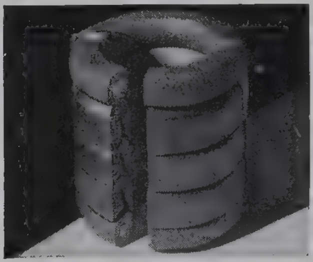
No. S271, Spiral Form
No. C271, Coil Form
No. R271, Ring Form

For service against hot water, varying hot and cold water conditions, low-pressure steam, ammonia, etc.; for use on reciprocating rods and plungers where packing space is ¼ inch or more. Made up of plies of duck, laid diagonally, bonded with high grade rubber compound, graphited.

Spirals in 12½-foot lengths, 1 to a box. Coils in boxes of 10 to 12 pounds for sizes ¼ to 1 inch. Rings packed in boxes.

Furnished in sizes ¼ inch and up.

J-M Sea Ring Packing



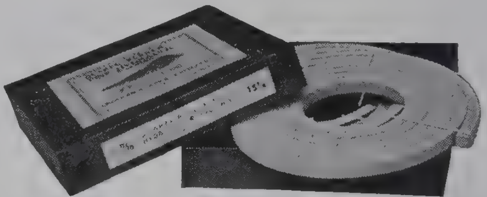
For use on reciprocating rods and plungers in good condition for service against steam, hot or cold water, air, gas, brine, etc.

For rod ¾ inch diameter or more and packing space of not less than 5/16 inch.

Flexible lips press against the rod only when a tendency to leak forces them to do so. Work only when action is needed. Depending upon the nature of the service, J-M Sea Rings are made of asbestos fabric or duck, or of a combination of the two, impregnated with heat and oil resisting materials selected to meet the particular conditions.

Furnished in ring form only. Prices upon application.

No. 53 Quaker Hydraulic Packing



For special service and heavy duty pumps.

This packing is recommended for extremely hot and boiling water and high pressure hydraulic work. It is made on fine woven fabric and held together with a strong white friction. Designed to have a minimum of expansion or swelling in most severe service in either hot or cold water.

Made in sizes ¼ inch and larger, in 14½-foot lengths.

No. 53.................................per pound ....

J-M Molded Packing Cups

Type A

Types A, B and P. Widely used on inside-packed pistons with outside edge or lip contacting cylinder wall or liner.

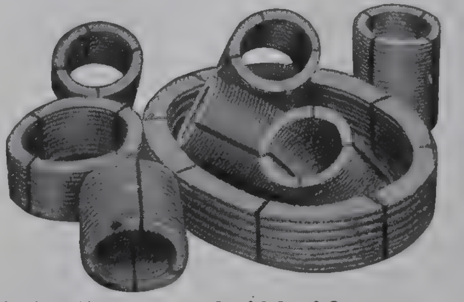
Type U. Usually installed with one side forming the seal against rod or plunger. Molded with either a round or flat bottom to fit shape of gland follower and is regularly furnished with one or more filler rings of Mogul, Flat or special molded packing.

Hat or Flange Type. Commonly used on small rods or plungers. It is also used as an oil seal on small, slowly rotating shafts.

Further information furnished on request.

Asbestos Folded Gaskets

For Manholes, Handholes and Flange Joints



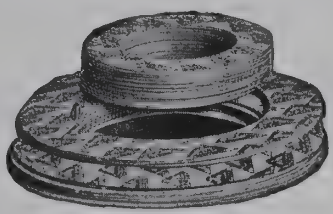
Will stand high temperatures and steam pressures. May be reused many times. Folded by hand and made of asbestos wire inserted sheeting.

Furnished in any size, shape or thickness. **In ordering,** give inside diameters and width of flange.

Per Pound...................................... ....

Durabla Gaskets

Thickness, 1/16 Inch



For sealing all liquid and gases, hot and cold oil, refrigerants, steam, water, gasoline, ammonia, acids, alkalies, and volatile vapors.

Made from Durabla Homogeneous asbestos sheet packing. Tested at working steam pressures in excess of 1600 lb. per square inch at 800°F. total temperature.

Ring Gaskets

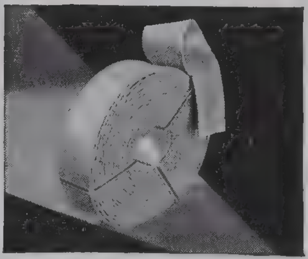
Pipe Size In.	125-Pound Standard & Low Pressure Flanged Valves & Fittings Gasket Inches	Each	250-Pound Extra Heavy & Medium Flanged Valves & Fittings Gasket Inches	Each
½	½x 1⅞	$.02	½x 2⅛	$.03
¾	¾x 2¼	.03	¾x 2⅝	.04
1	1 x 2⅝	.03	1 x 2⅞	.04
1¼	1¼x 3	.04	1¼x 3¼	.05
1½	1½x 3⅜	.05	1½x 3¾	.07
2	2 x 4⅛	.08	2 x 4⅜	.09
2½	2½x 4⅞	.10	2½x 5⅛	.12
3	3 x 5⅜	.12	3 x 5⅞	.15
3½	3½x 6⅜	.17	3½x 6½	.18
4	4 x 6⅞	.20	4 x 7⅛	.21
5	5 x 7¾	.24	5 x 8½	.30
6	6 x 8¾	.29	6 x 9⅞	.40
8	8 x11	.41	8 x12⅛	.57
10	10 x13⅜	.58	10 x14¼	.76
12	12 x16⅛	.85	12 x16⅝	1.01
14 O. D.	14 x17¾	.90	13¼x19⅛	1.37
16 O. D.	16 x20¼	1.16	15¼x21¼	1.67
18 O. D.	18 x21⅝	1.23	17 x23½	2.00
20 O. D.	20 x23⅞	1.38	19 x25¾	2.35
24 O. D.	24 x28¼	1.85	23 x30½	3.11
30 O. D.	30 x34¾	2.67	29 x37½	4.45
36 O. D.	36 x41¼	3.60	34½x44	6.03
42 O. D.	42 x48	4.91	40¼x50¾	8.43
48 O. D.	48 x54½	6.21	46 x58¾	11.37

Full Face Gaskets

Pipe Size In.	125-Pound Standard and Low Pressure Flanged Valves and Fittings Gasket Inches	Each	250-Pound Extra Heavy and Medium Flanged Valves and Fittings Gasket Inches	Each
½	½x 3½	$.07	½x 3¾	$.08
¾	¾x 3⅞	.08	¾x 4⅝	.12
1	1 x 4¼	.10	1 x 4⅞	.13
1¼	1¼x 4⅝	.11	1¼x 5¼	.15
1½	1½x 5	.13	1½x 6⅛	.20
2	2 x 6	.18	2 x 6½	.22
2½	2½x 7	.25	2½x 7½	.29
3	3 x 7½	.27	3 x 8¼	.34
3½	3½x 8½	.35	3½x 9	.39
4	4 x 9	.37	4 x10	.48
5	5 x10	.44	5 x11	.55
6	6 x11	.52	6 x12½	.70
8	8 x13½	.75	8 x15	.97
10	10 x16	1.02	10 x17½	1.29
12	12 x19	1.44	12 x20½	1.74
14 O.D.	14 x21	1.70	13¼x23	2.20
16 O.D.	16 x23½	2.10	15¼x25½	2.68
18 O.D.	18 x25	2.30	17 x28	3.19
20 O.D.	20 x27½	2.72	19 x30½	3.72
24 O.D.	24 x32	3.56	23 x36	5.13
30 O.D.	30 x38¾	5.01	29 x43	7.04
36 O.D.	36 x46	6.98	34½x50	9.46
42 O.D.	42 x53	9.21	40¼x57	12.05
48 O.D.	48 x59½	11.26	46 x65	15.59

Also available per A.S.A. B16.21 size specifications.

No. 120 J-M Kearsarge Asbesto-Metallic Gasketing Tape



For making odd or irregular shaped gaskets to pack joints against steam, air, water, ammonia, and various acidulated, alkaline and other chemical solutions.

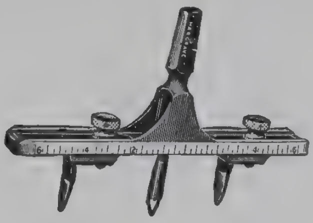
Made of asbesto-metallic yarn, woven into fabric and treated with a high heat-resisting, resilient cement.

Furnished in widths ½ inch and greater, and in thicknesses of 1/16 inch and up. Cannot be made in widths less than twice the thickness.

Prices upon application.

No. 407 Hargrave Washer Cutters

Used for cutting gaskets out of leather, paper, rubber, sheet lead or thin wood, cutting both inner and outer circle at the same time and adapted to any ordinary brace. Made to cut up to 6 inches. Minimum capacity, ⅞ inch.

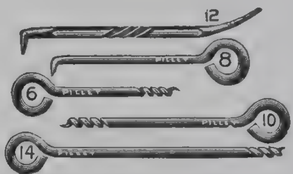


Body malleable iron; steel pin; blades tool steel, properly ground and tempered. Polished and japanned. Adjustment made by knurled thumb screws.

Packed 1 in a box. Weight, ⅞ pounds.

No. **407**, 6-Inch with Gage	each **$5.20**
No. **407A**, Knives Only	each **1.50**
No. **410**. Screws Only	each **.60**

Pilley Packing Tools



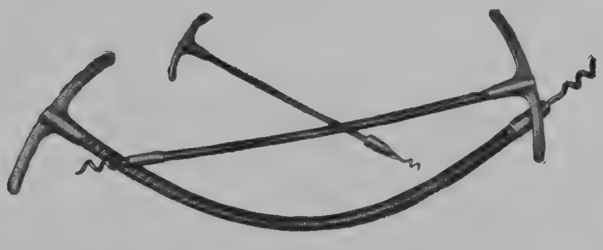
Will go into any valve, rod, pump or engine stuffing box. Of special tool steel and guaranteed not to break while in use removing packing from stuffing boxes of engines and valve rods. Nickel-plated, preventing rusting.

Made of 3/16, ¼ and 5/16-inch steel in 6, 8, 10, 12, 14, 16, 18, and 20-inch lengths. Each set packed in separate box.

Shipping weight: Set No. 8801 about 12 ounces each. Set No. 8802, about 21 ounces each.

No. **8801**, Set of 4 Packing Tools, Containing a 6, 10 and 14-Inch Screw and one 12-Inch Double Ender	per set **$2.25**
No. **8802**, Set of 6 Packing Tools, Containing One Each 6, 10, 14 and 16-Inch Screw, One 8-Inch Hook and One 12-Inch Double Ender	per set **$3.25**

Rhopac Flexible Packing Hook Sets



Strongly made of tough materials. Shank made up of two spiral steel shafts, one inside the other, wound in opposite directions.

Has hard, solid handle. Hook is tempered and permanently pointed.

Set of 3	**$5.00**

Darcova Pumcups

DARCOVA
5
DARLING VALVE & MFG.

For all piston-packed reciprocating pumps and hydraulic cylinders on air, gas, water, acids, alkalies, oils, chemicals, food and petroleum products. Increases pumping efficiency, reduces wear on pistons and cylinder walls, lengthens pump life.

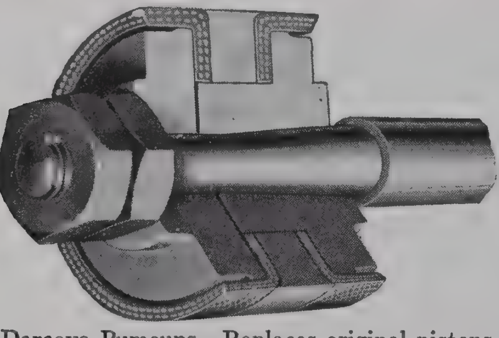
Withstands pressures from 28 inches vacuum to pressures running into thousands of pounds; temperatures from 350°F. below zero to 350°F. above.

In ordering, specify texture wanted whether hard, medium or soft, and furnish full dimensional data and material of cup previously used.

Cup Size In.	Each	Cup Size In.	Each	Cup Size In.	Each
1¾	$.52	4¼	$3.50	7½	$7.25
2	.55	4½	4.00	8	7.75
2¼	.80	4¾	4.50	8½	8.25
2½	.95	5	4.75	9	8.75
2¾	1.10	5¼	5.00	9½	9.25
3	1.55	5½	5.25	10	9.75
3¼	1.75	5¾	5.50	11	12.30
3½	2.00	6	5.75	12	15.00
3¾	2.50	6½	6.25	13	17.50
4	3.00	7	6.75	14	21.00

Special cups, prices upon application.

Darling Reciprocating Pump Piston Adapters



For Darcova Pumcups. Replaces original pistons in reciprocating pumps and hydraulic cylinders. Permits efficient functioning of Pumcups. Made to close tolerances. Furnished in special gray iron, bronze, aluminum, Ni-Resist, nickel alloys, stainless steel and special alloys.

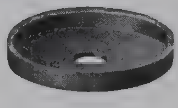
Sizes, from 1 to 20 inches. Diameters from 1 to 6 inches by quarter-inch intervals, and by half-inch intervals from 6 to 16 inches. For rebored cylinder liners there are available $\frac{1}{32}$ inch oversizes from 1 to 6 inches and $\frac{1}{16}$ inch oversizes from 6 to 10 inches. Furnish the make and size of pump and serial number; liner size; name and type of fluid with maximum temperature and pressure to be pumped.

For Use With Pumcup Inches	*Iron Piston Comp. Each	*Bronze Piston Comp. Each	For Use With Pumcup Inches	*Iron Piston Comp. Each	*Bronze Piston Comp. Each	For Use With Pumcup Inches	*Iron Piston Comp. Each	*Bronze Piston Comp. Each
1¾	$5.55	$12.20	4	$8.00	$20.00	6½	$16.60	$38.75
2	5.55	12.20	4¼	8.25	21.00	7	18.45	45.40
2¼	5.55	12.20	4½	8.50	21.75	7½	23.55	52.15
2½	5.95	13.25	4¾	9.00	22.50	8	27.25	58.85
2¾	6.25	14.00	5	9.60	23.10	8½	31.15	65.55
3	6.75	14.75	5¼	10.40	25.15	9	34.85	72.00
3¼	7.00	16.00	5½	11.55	27.25	9½	39.25	78.70
3½	7.25	18.75	5¾	12.70	29.55	10	43.85	83.00
3¾	7.50	19.25	6	13.85	32.10	....	.....	.....

*Without cups.

Cup Leathers

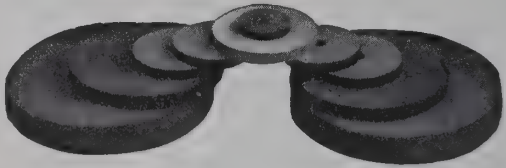
Plain and Hydraulic



Both styles, plain and hydraulic, can be furnished in the following sizes:

Size Inches	Per Gross	Size Inches	Per Gross	Size Inches	Per Gross
1	....	2¾	....	4½	....
1¼	....	3	....	4¾	....
1½	....	3¼	....	5	....
1¾	....	3½	....	5¼	....
2	....	3¾	....	5½	....
2¼	....	4	....	5¾	....
2½	....	4¼	....	6	....

Rubber Pump Valves



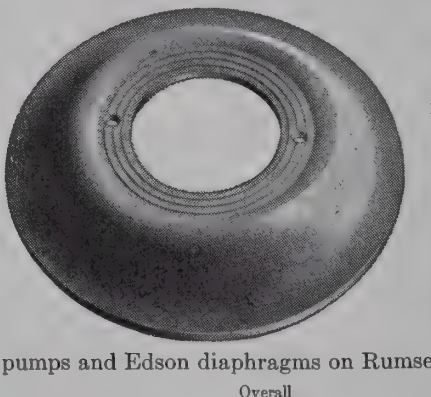
This valve is adaptable to a wide range of conditions which have been investigated for the purpose of ascertaining the correct compound to give the best results.

Consistency	Service Intended for	For Pressure Pounds
Soft	Cold Water	80 to 100
Medium	Semi-Hot Water	100 to 250
Hard	Hot Water	125 to 300

In ordering, state diameter, thickness and size of hole. Prices upon application.

Trench Pump Diaphragms

For Loud, Edson, and Gould Pumps



Standard quality. High grade rubber with a special weave of strong flexible fabric.

Can be furnished with or without holes.

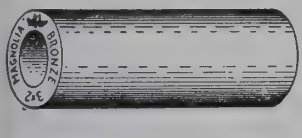
Designations refer to size and make of pump for which diaphragm is designed. Loud diaphragms may also be used on Deming pumps and Edson diaphragms on Rumsey pumps.

Style	Each	Overall Diam. Inches	Style	Each	Overall Diam. Inches
No.1 Loud	.....	10	No.4 Edson	.....	15
No.2 Loud	.....	13¼	No.2 Gould	.....	11¼
No.2 Edson	.....	11¼	No.3 Gould	.....	13
No.3 Edson	.....	13	No.4 Gould	.....	15

We have it. See us first.

Magnolia Isotropic Die-Cast Bronze Bar Stock

Semi-Finish Machined Cored and Solid Bars



Brinell 70; yield point, 26,000 per square inch; ultimate strength, 31,500; elongation in 2 inches, 8.5 percent.

Has no sand, no blow holes or other faults.

The die-cast process insures a uniform crystal structure, which gives added strength and toughness.

Bars are 13 inches long; 1/16 inch oversize and 1/16-inch undersize up to 4 inches o.d.: ⅛ inch oversize and ⅛ inch undersize on bars above 4 inches o.d.

Weights given below are on 13-inch lengths.

Available in sizes up to 22 inches o.d.

Solid Bars

Size In.	Wt. Lb.	Size In.	Wt. Lb.	Size In.	Wt. Lb.	Size In.	Wt. Lb.
1	3¾	1⅞	12¼	2¾	26	4¼	63
1⅛	4½	2	14	2⅞	28	4½	70
1¼	5½	2⅛	15¾	3	31	4¾	78
1⅜	6¾	2¼	17½	3¼	36	5	86
1½	8	2⅜	19½	3½	42	6	124
1⅝	9¼	2½	21½	3¾	48	7	167
1¾	10¾	2⅝	23¾	4	56	8	218

Cored Bars

Size In.	Wt. Lb.	Size In.	Wt. Lb.	Size In.	Wt. Lb.
1 x ½	3	2¼x ⅞	15¾	3½x1¼	36¾
1⅛x ½	4	2¼x1	15	3½x1½	34½
1⅛x ⅝	3¾	2¼x1⅛	14¼	3½x1¾	32
1¼x ½	4¾	2¼x1¼	13¼	3½x2	29
1¼x ⅝	4½	2¼x1⅜	12¼	3½x2¼	25
1¼x ¾	4¼	2¼x1½	11	3½x2½	22
1⅜x ½	6	2⅜x ½	19	3¾x1	44
1⅜x ⅝	5¾	2⅜x ⅝	18¾	3¾x1¼	42
1⅜x ¾	5½	2⅜x ¾	18½	3¾x1½	40
1⅜x ⅞	4¾	2⅜x ⅞	17¾	3¾x1¾	38
1½x ½	7¼	2⅜x1	17	3¾x2	34
1½x ⅝	7	2⅜x1⅛	16¼	3¾x2¼	31
1½x ¾	6¾	2⅜x1¼	15¼	3¾x2½	27
1½x ⅞	6	2⅜x1⅜	14¼	3¾x2¾	23
1½x1	5¼	2⅜x1½	13	4 x1	52½
1⅝x ½	8½	2⅜x1¾	10	4 x2	43
1⅝x ⅝	8¼	2½x ½	21	4 x2¼	39
1⅝x ¾	8	2½x ⅝	20¾	4 x2½	36
1⅝x ⅞	7¼	2½x ¾	20½	4 x2¾	32
1⅝x1	6½	2½x ⅞	19¾	4¼x1	59½
1⅝x1⅛	5¾	2½x1	19	4¼x2	50
1¾x ½	10	2½x1⅛	18¼	4¼x2¼	46
1¾x ⅝	9¾	2½x1¼	17¼	4¼x2½	43
1¾x ¾	9½	2½x1⅜	16¼	4¼x2¾	39
1¾x ⅞	8¾	2½x1½	15	4¼x3	35
1¾x1	8	2½x1⅝	13¾	4½x1	66¾
1¾x1⅛	7¼	2½x1¾	12	4½x2	57
1¾x1¼	6¼	2¾x ¾	25	4½x2½	50
1⅞x ½	11½	2¾x ⅞	24¼	4½x2¾	46
1⅞x ⅝	11¼	2¾x1	23½	4½x3	42
1⅞x ¾	11	2¾x1⅛	22¾	4¾x1	75½
1⅞x ⅞	10¼	2¾x1¼	21¾	4¾x1½	72
1⅞x1	9½	2¾x1⅜	20¾	4¾x1¾	69
1⅞x1¼	7¾	2¾x1½	19½	4¾x2	66
2 x ½	13¼	2¾x1⅝	18¼	4¾x2¼	62
2 x ⅝	13	2¾x1¾	17	4¾x2½	59
2 x ¾	12¾	2¾x2	14	4¾x2¾	55
2 x ⅞	12	3 x1	28	4¾x3	51
2 x1	11¼	3 x1⅛	27¼	5 x1	84
2 x1⅛	10½	3 x1¼	26¼	5 x1½	80
2 x1¼	9½	3 x1⅜	25¼	5 x2	74
2⅛x ½	15½	3 x1½	24	5 x2½	67
2⅛x ⅝	15¼	3 x1⅝	22¾	5 x3	59
2⅛x ¾	15	3 x1¾	22	5½x3	77
2⅛x ⅞	14¼	3 x1⅞	20	5½x3½	67
2⅛x1	13½	3 x2	18	5½x4	56
2⅛x1⅛	12¾	3¼x1	33¼	6 x3	96
2⅛x1¼	11¾	3¼x1¼	31½	6 x3½	86
2⅛x1⅜	10¾	3¼x1½	29¼	6 x4	75
2⅛x1½	9½	3¼x1¾	27	7 x4	118
2¼x ½	17	3¼x2	23	7 x5	89
2¼x ⅝	16¾	3¼x2¼	20	8 x5	142
2¼x ¾	16½	3½x1	38½	8 x6	104

Obtainable in sizes to 22″ O. D., lengths to 40″ in some sizes.

Babbitt Metals

National Nickel

NATIONAL
NICKEL
THE NATIONAL MILL SUPPLY CO

A bearing metal designed for high speeds.

Its major metal is tin, having a high melting point with lowest friction, contains no lead, but has nickel, therefore it is harder and better than National Genuine, and without the loss of any of the lubricating qualities.

National Genuine

NATIONAL
GENUINE
THE NATIONAL MILL SUPPLY CO.

A babbitt formulated according to Government specifications, for genuine bearing metal, to be used for hard service and exceedingly high speed.

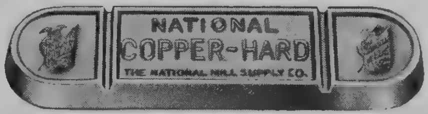
Wayne Genuine

WAYNE
GENUINE
THE NATIONAL MILL SUPPLY CO.

A major tin metal that will hold lubrication, and is recommended to be used for high speeds.

Furnished at a lower price than National Nickel or National Genuine.

National Copper-Hard



Particularly adapted for heavy duty, universal service.

Makes an especially smooth running bearing for woodworking and metal working machinery.

A copper bearing metal that will stand up under hard usage. Recommended where a metal better than Fortmogel is desired.

Special Fortmogel

SPECIAL
FORTMOGEL
THE NATIONAL MILL SUPPLY CO

A universal all around metal.

Will resist loads and speed without crushing, cracking or heating with low friction, is extremely fluid in pouring, and will produce a solid bearing.

National Special

NATIONAL
SPECIAL
THE NATIONAL MILL SUPPLY CO

A medium speed frictionless universal bearing metal, well adapted for heavy load at low speed without crushing and has a large range of useful adaptions in the medium price babbitt.

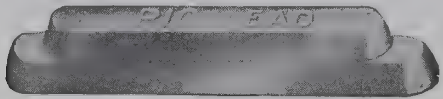
No. 4 Babbitt

A babbitt metal for low speed and where the price is an important factor.

Ingot Lead

Per Pound.. ...

Pig Lead



Pigs weigh about 100 pounds.

Prices upon application.

Lead Wool

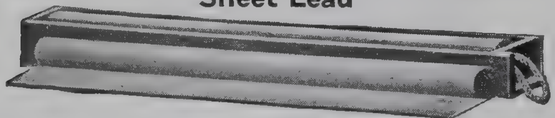
Lead wool is used in making caulked joints on cast iron pipe and in gas and water service.

Made of lead in the form of a loosely twisted rope 5/8 inch in diameter.

Packed in 50-pound bags on mandrel, about 125 feet of rope, or on 100-pound reels, about 250 feet of rope.

Prices upon application.

Sheet Lead



Thickness......in.	1/64	1/32	3/64	1/25	1/16	1/14	1/12	1/8
Wt. Sq. Ft......lb.	1 1/2	2	2 1/2	3	4	5	6	8

Market prices.

Kester Acid-Core Solder

For General Soldering

KESTER ACID CORE SOLDER
KESTER SOLDER
ACID-CORE
KESTER SOLDER
KESTER SOLDER
ACID CORE

Easy to use, saves time, and is dependable for a permanent bond.

Contains a scientifically prepared flux that flows in just the right proportions as the solder melts. Requires only heat.

Standard size, 1/8 inch, about 25 feet to the pound.

1-Pound Spool	each	....
5-Pound Spool	each	.....
20-Pound Spool	each	.....

Kester Plastic Rosin-Core Solder

For Electrical and Radio Work

KESTER SOLDER
KESTER SOLDER
Plastic Rosin Core
KESTER SOLDER
KESTER SOLDER
Plastic Rosin-Core

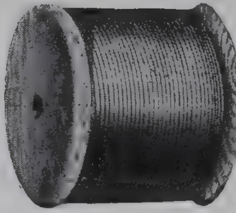
With plastic rosin flux, non-corrosive and electrically non-conductive.

The flux flows, as the solder melts, in just the right amounts for a perfect soldering job.

Requires only heat.

Standard size, 3/32 inch, about 50 feet to the pound.

Size Spool........pounds	1	5	20
Each	....	....	....



Wire Solder

50/50 or 40/60

For use in mechanical or automatic feeding machines and with manual devices.

Either 50/50 or 40/60 furnished, as specified.

Made in 1 and 5-pound spools. Prices on application.

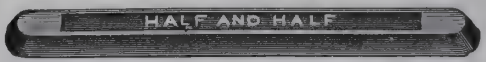
Silver Solder

ONE OUNCE
SILVER SOLDER
FOR
BAND SAWS

Silver solder has proved to be best adapted for brazing tempered steel. Has been widely adapted for brazing band-saws. It is furnished in one-ounce cans in 1/2, 5/8, 3/4, 7/8 and 1-inch widths, in .003 and .004 gages.

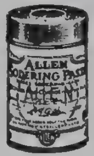
Per Ounce.................... ....

Commercial Half and Half Solder


HALF AND HALF

Per Pound.. .....

Allen Soldering Paste

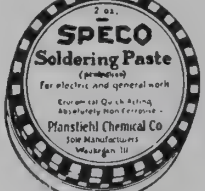

ALLEN
SODERING PASTE
ALLEN

A corrosion free, soft form of flux.

Carries Underwriters' approval.

Size Can	2-Oz.	4-Oz.	1/2-Lb.	1-Lb.	5-Lb
Each	$.13	.25	.50	.90	4.40
No. in Carton	24	24	12	6	1

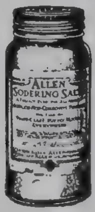
Speco Soldering Paste


2 oz.
SPECO
Soldering Paste
For electric and general work
Planstiehl Chemical Co
Sole Manufacturers
Waukegan Ill

For all metals except aluminum. Makes soldered joints vacuum tight. Absolutely non-corrosive, flows clear and smooth into the smallest spaces.

Size Can..........pounds	1/8	1
Each	$.18	.58
Std. Pkg.	200	50
Wt. Std. Pkg.......pounds	25	60

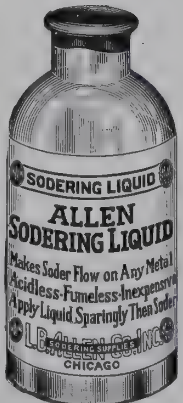
Allen Soldering Salts


ALLEN
SODERING SALTS

These salts are dry and in concentrated form. To make up a perfect flux of sufficient strength to use on old metal add three parts water to one part salts; on new metal use even greater dilution.

Size Bottle	1/2-Lb.	1-Lb.	5-Lb.
Each	$.40	.59	2.70
No. in Carton	12	6	1

Allen Red Soldering Acid


SODERING LIQUID
ALLEN
SODERING LIQUID
Makes Soder Flow on Any Metal
Acidless·Fumeless·Inexpensive
Apply Liquid Sparingly Then Soder
L.B. ALLEN CO. INC.
SODERING SUPPLIES
CHICAGO

For all-around work, for all metals except aluminum and stainless steel. Red formula. Non-evaporating.

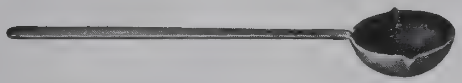
Adaptable to hand or machine soldering. Excellent for tinning and soldering copper.

Size Bottle	1-Qt.	1-Gal.
Per Bottle	$.95	2.50
No. in Carton	3	1

No. 135 Solder Pots

Size In.	Each	Cap. Lead Lb.	Size In.	Each	Cap. Lead Lb.
4	$1.20	10	9	$7.00	80
5	1.60	15	10	9.40	110
6	2.20	20	12	13.00	180
7	3.50	40	13¼	15.00	200
8	4.50	60	....	.....	...

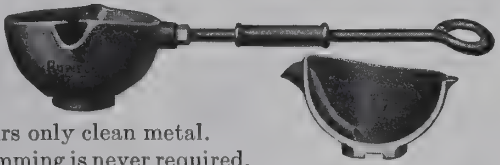
Malleable Iron Melting Ladles



Diameter......inches	2½	3	3½	4	5	6
Each...............	$.65	.80	1.10	1.10	1.95	2.50
Length........inches	10⅜	11⅛	11¾	13	15	15⅛
Capacity.....pounds	1	1½	2½	3½	7	12
Weight.......pounds	¾	⅞	1¼	1½	2¾	3¾

Rowell Bottom Pour Melting Ladles

Listed by Underwriters' Laboratories

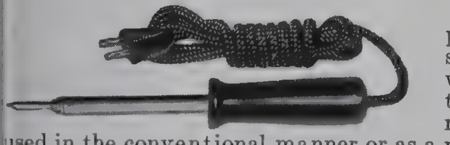


Pours only clean metal.
Skimming is never required.
Made of alloy grey iron.
Sliding sleeve furnished on all sizes except 3-inch.

Diam. Bowl In.	Each	Cap. Lead Lb.	Cap. Water Pt.	Depth Bowl In.	Diam. Hdle. In.	Lgth. Hdle. In.	Lgth. Over-all In.	Comp. Wt. Lb.	Bowl Wt. Lb.
3	$2.50	4	⅜	2¼	⅜	12½	15½	2	....
4	3.70	4½	½	2	7/16	16	20	4	1¾
5	4.20	9	1	2½	7/16	24	31	5	3½
6	4.75	18	2	3	⅝	29	35	9	4
7	5.10	25	3	4½	⅝	29	36	10	6
8	6.10	40	4	4½	⅝	29	37	13	9
*9	7.80	60	7	5	¾	29	38	20	13
*10	9.30	90	9	5¼	¾	29	39	23	15

*Can be furnished with two handles at an additional cost of $2.45.

American Beauty Bantam Electric Soldering Irons



Designed for production type soldering on light work, either continuous or intermittent. Can be used in the conventional manner or as a pencil-type iron.

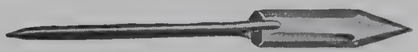
Plug-type tip is easily replaceable. Tips can be furnished with either diamond or chisel point.

High quality nickel-chromium heating element, mica-insulated. Taper spool nose and projection-free casing assures maximum visibility and catch-free access to hard-to-get-at locations. Stainless steel casing insures against undue loss of heat and keeps handle cool.

Super-flexible American Beauty heater cord, equipped with Sta-Tite rubber attachment-plug cap. Also available with Type SV rubber covered two or three-conductor cord.

No..................................	3118	3120
Each................................	$5.00	5.00
Diameter of Tip..................inches	⅛	3/16
Watts...............................	30	30
Overall length...................inches	9¼	9¼
Casing Diameter..................inches	½	½
Net Weight.......................ounces	6¼	6½

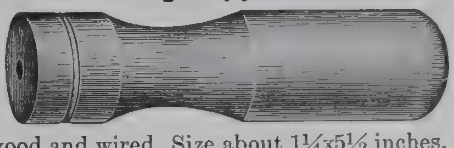
Soldering Coppers



Forged from drawn copper bolts of the best quality. By this method they are as solid as metal can be made, are better heat retainers and should not be compared with such as are cast from copper ingots.

Weight per Pair...............lb.	¾	1	1¼	1½
Soldering Coppers...........each	....	....	....	...

Soldering Copper Handles



Soft wood and wired. Size about 1¼x5½ inches.
Per Gross.. .....

Sta-Warm Electric Babbitt Pots

110 and 220 Volts

No. 650

Pots have cast iron inside, sheet steel housing, heavy insulation, and direct heat.

Standard pots operate at maximum of 800°F.

No...................	†648Y	†649Y	*650	*651	652
Each.................	$13.30	15.05	18.75	22.40	35.65
Capacity......pounds	2	5	11½	16½	36
Watts................	220	330	410	500	825
Shipping Weight....lb.	6	6	9	10	20

*Pouring lip available. †Conical shape.

Hold-Heet Electric Glue Pots

With Automatic Thermostat Control

The outer flange of the glue container is widely extended and far down over the side of the pot, preventing any possibility of glue lodging between chambers.

Inner chamber is of heavy gage seamless spun aluminum. Outer chamber of welded boiler plate is finished in baked black japan.

The Hold-Heet is equipped with removable wiper rod, composition bakelite separable plug, and rubber connector plug. There is a guard over the terminals.

As the use of ears on the bails has been eliminated, there is no place for glue to lodge.

Boiling takes away the life of the glue and ruins its sticking qualities. Glue should never be heated above 150 degrees Fahrenheit. This is accomplished by the thermostat inside of the pot. This regulation and the heat insulating double walls lined with asbestos both save current.

By the use of this pot, the glue is always at a proper temperature; no possibility of overheating or spoiling; no water jacket to boil dry; minimum evaporation of water from glue; no special wiring is needed. Eight one-quart pots may be operated on the ordinary lighting circuit.

No.		Complete Each	Extra Inner Chamber Each	Size Quarts	Watts
115 Volts	230 Volts				
G1151	G2301	$17.90	$3.50	1	132
G1152	G2302	21.30	4.50	2	220
G1154	G2304	33.60	9.00	4	330
G1158	G2308	49.35	10.50	8	660

No. 1 Johnson Gas Soldering Furnaces

A cast iron bench furnace designed to heat soldering coppers up to 6 pounds per pair. Also for heat-treating, tempering and annealing of small carbon steel tools.

Equipped with one Bunsen burner with shut-off valve.

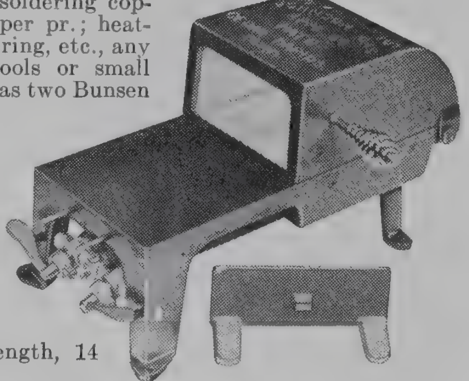
Firebox is lined with a heavy refractory lining.

Length, 12 inches. Firepot opening, 3½x2½ inches. Gas consumption, 13000 Btu. per hour.

Ship. weight, 16 pounds.

No. **1**..each **$16.00**

No. 101 Johnson Bench Furnaces

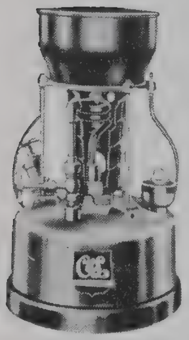


For heating soldering coppers to 12 lb. per pr.; heat-treating, tempering, etc., any carbon steel tools or small metal parts. Has two Bunsen burners, each with shut-off valve, pilot-light; baffle plate. Gas consumed, 13000 Btu. per hr. per burner. Firepot open., 4½x2¾ in. Length, 14 inches.

No. **101**; Firebox, 3¾x4½x5½ In.; Wt., 18 Lb.each **$20.80**

No. 22-A C&L Coil Fire Pots

1-Gallon Capacity
For Unleaded Gasoline



Easy to start. Coil-type burner produces large powerful blast flame sufficient to melt 200 pounds of lead per hour on less than one tank filling.

Coil burner unit is quickly detachable and easily replaced.

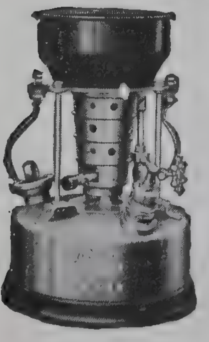
Top plate and shield designed for 6-inch melting pot.

Approximate shipping weight, 14 pounds.

No. **22A**..each **$32.00**

No. 44A C & L Coiltrol Fire Pots

With Flame Control—Capacity, 1 Gallon



For Gasoline

Easy to start and simple to operate. The coil unit has a flame control device which allows the flame to be varied in size and volume. A pot of metal can be rapidly melted and then, by an adjustment of the flame control valve, be held at the desired temperature. This results in a saving of gasoline and metal.

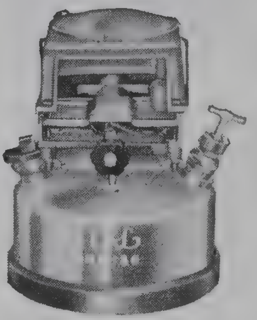
Regularly supplied for burning gasoline. Kerosene may be used by changing burner jet. **Specify** if kerosene is to be used.

Shipping weight, 13¾ pounds.

No. **44A**..each **$24.75**

No. 180 C&L Silent Firepots

1-Gallon Capacity
For Gasoline



For sheet metal workers, roofers, tinners, and general utility use.

Twin blue flames play from each side to the center. A control valve regulates the flame so that coppers or molten metal can be held at the desired temperature.

Generator has a removable jet block and a replaceable cleaner pin.

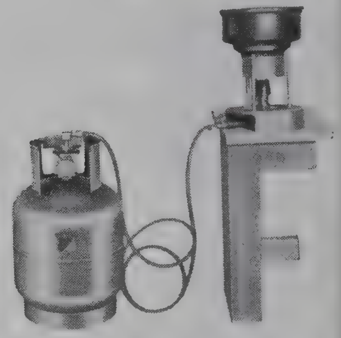
Shipping weight, 25 pounds.

No. **180**..............each **$41.00**

C&L Firepots

Liquid Petroleum Gas

No. PS-2



No. PBT-1

Instant lighting, burns with a powerful, high-temperature blue flame. Melts lead quickly and efficiently.

Tank is shipped empty.

No. PS-2

Portable. Firepot mounts directly on tank valve.

Consists of a 20-pound cylinder, valve and wheel, lead melting assembly, 7-inch melting pot and large shield.

Shipping weight, 48 pounds.

No. PS-**2**, Complete..........................each **$54.00**

No. PBT-1

For bench use only. Convenient for all shop use. Firepot and hand torch can be used simultaneously with adapter using only one tank.

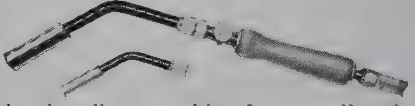
Consists of 20-pound cylinder, valve and wheel, firepot assembly, 10-foot hose and hose to tank adapter, 7-inch metal pot and large shield.

Hose to valve adapter makes it possible to use firepot assembly with any standard tank and plumber pot valve.

Shipping weight, 50 pounds.

No. PBT-**1**, Complete........................each **$70.50**
No. PB-**1**, Without Tank and Valve...........each **40.50**

No. TP-30 C&L LP Hand Torches



Designed to handle everything from smallest jewelry jobs to the larger copper pipe sweating jobs. Instant ignition. Produces hot blue flames up to 2700°F. Smaller burner operates from 125 to 250 hours, larger burner from 22 to 50 hours on 20 pounds of propane.

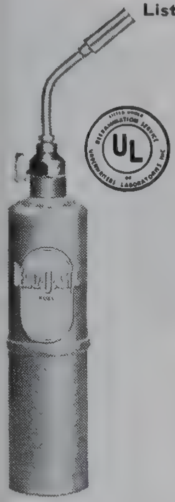
Double induction permits use in enclosed spaces. Non-clogging, non-sticking valve permits instant response from low to high flame. Interchangeable burner heads adjust to any angle; will burn in any position.

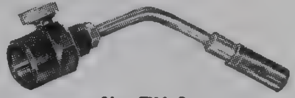
Complete with valve and handle assembly, 10 feet of hose with couplings, and Nos. PT-11 and PT-20 burner assemblies.

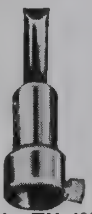
Shipping weight, 4 pounds.

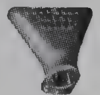
No. PT-**30**....................................each **$33.00**

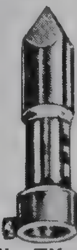
Bernz-O-Matic Master Torches
With Disposable Fuel Cylinder
Listed by Underwriters' Laboratories


No. TX-10, with No. TX-1 Burner


No. TX-2


No. TX-400


No. TX-300


No. TX-401

For paint burning, copper sweat fitting, laying asphalt tile, body and fender work, bending tubing, etc.

Made of all brass.

Lights instantly even at 30° below zero. Requires no pumping or priming to light.

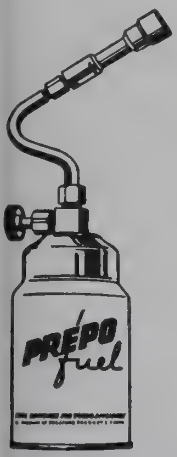
Disposable cylinder with safety relief valve can be thrown away when fuel is exhausted and replaced with another. A self-sealing valve prevents leakage.

Packed 12 or 24 in a standard package.

Shipping weight per 12, 36 pounds.

No. **TX10**, with Cyl. and No. TX-1 Pencil Burner	ea.	**$6.95**
No. **TX11**, with Cyl. and No. TX-2 Utility Burner	ea.	**6.95**
No. **TX-1**, Pencil-Flame Burner Unit	ea.	**5.00**
No. **TX-2**, Utility Burner Unit	ea.	**5.00**
No. **TX9**, Disposable Cylinder	ea.	**1.95**
No. **TX-400**, Small Soldering Tip; Use with No. TX-10	ea.	**1.75**
No. **TX-401**, Large Soldering Tip; Use with No. TX-10	ea.	**1.95**
No. **TX-300**, Flame Spreader; Use with No. TX-11	ea.	**1.95**

Series 600 Prepo Fuel and Torches



Torch may be used in any position. Uses throw-away fuel container.

Clean, odorless heat; no pumping; no priming of liquid. Finger tip flame control; fully automatic. Tips are interchangeable. Full flame. Torch is instant lighting and gives full heat at once over 2200°F.

Size, 4x10½ inches; fits in tool box.

Weight, 1¼ pounds.

No. 600 Prepo Torch Base Kits
Consists of torch base and tank of fuel; no burner.

No. **600**, Weight, 1 3/16 Pounds..each **$3.95**

No. 601 Prepo Standard Torch Kits
Consists of torch base with No. 613 utility burner and tank of fuel.

No. **601**, Weight, 1 5/16 Pounds..each **$5.95**

No. 605 Prepo Master Torch Kits
Consists of professional torch base; one each heavy-duty, pin point and utility burner; one each paint remover, diamond point and chisel point solder tip; one tank of fuel. Packed in all-metal fitted carrying case.

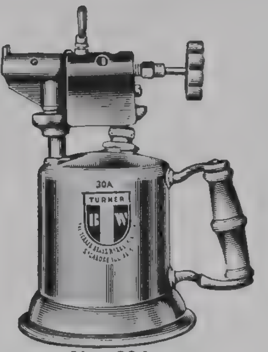
No. **605**, Weight, 5 Pounds	each	**$19.95**
No. **612**, Pin Point Burner, for Precision Work	each	**$2.95**
No. **613**, Utility Burner, for General Purpose Work	each	**2.00**
No. **615**, Heavy-Duty Burner, for Great Heat Volume	each	**4.45**
No. **620**, Paint Remover Tip	each	**1.25**
No. **621**, Diamond Point Solder Tip	each	**1.95**
No. **622**, Chisel Point Solder Tip	each	**1.95**

No. 690 Prepo Fuel Tanks
A constant, self-pressurizing fuel containing petroleum hydrocarbons, non-poisonous and non-toxic.

Packed in throw-away fuel containers.

No. **690**, Weight, 12 Ounces....................each **$.59**

Turner Standard Blowtorches
No. 30A, 1-Quart Capacity
No. 25A, 1-Pint Capacity



No. 30A

For Gasoline

For garage, service station or repair bench.

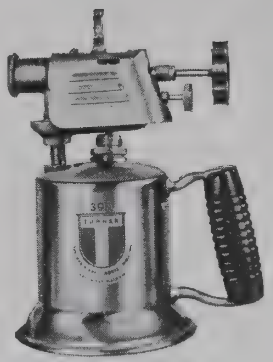
Powerful one-piece, cast bronze burner with jam-proof taper needle. Leakproof hexagon feed pipe inlet. All inlets locked metal to metal.

Rapid blowproof pump with self lubricating leather washer.

High polished brass tank. Top-fill with windshield.

No.	30A	25A
Each	**$13.50**	**$13.50**
Capacity	1 Qt.	1 Pt.
Shipping Wt. . lb.	4½	3¾

No. 39A Turner Blowtorches
1-Quart Capacity
*For Gasoline



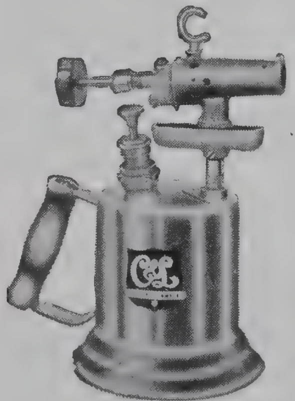
Develops large blue flame and operates perfectly in any weather. Sturdy construction gives life-time service. Wire cleaning needle and orifice block easily replaced after years of wear. Perfect combustion obtained from adjustable air syphoning tube. Cool composition valve wheel. Drip cup conveniently filled through lower priming valve. Brass tank with trouble-free pump.

Shipping weight, 5 pounds.

No. **39A**..........each **$19.90**

*Can be equipped for kerosene if specified.

No. 600A C&L Gasoline Blowtorches
For Leaded or Unleaded Gasoline



1-Quart Capacity

Burner is made with back-flow generating vein of one-piece construction. Produces an extremely hot, moderate size flame. Blunt control needle with detachable cleaner pin permits positive flame adjustment. Easily replaceable jet blocks.

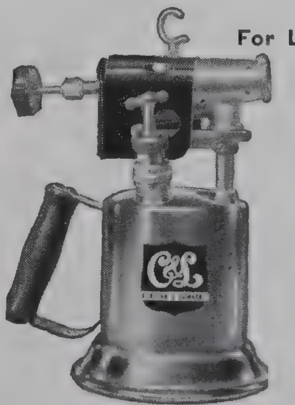
Removable cleaner pin prevents orifice enlargement.

All brass tank with funnel-type bottom fill. Equipped with a heavy duty pump.

Shipping wt., 5 lb.

No. **600A**..........each **$14.40**

No. 32A C&L Mechanic's Standard Blowtorches
For Leaded or Unleaded Gasoline



For heavy duty service.

Oversize generating area, plus 2-piece burner produces a steady blue flame. Blunt control needle permits positive flame adjustment. Weather-protected with heavy duty windshield.

Operation of removable cleaning pin prevents orifice enlargement. Pump has lock-down feature. Brass tank with funnel type bottom.

Capacity, 1 quart.

Shipping weight, 5½ lb.

No. **32A**..........each **$21.00**

Series 90 Marquette Perma-Shield Instant-Arc A.C. Welders

With Steel Wheel Running Gear

Wide welding range from light gage sheet metal to heavy steel. Instant arc striking. Accurately calibrated amperage settings and variable voltage control. Reactance type transformer.

Non-conductive Perma-Shield fiberglass cabinet; nonmagnetic, no loss from eddy currents; more usable transformer output. Molded-in reinforcing ribs. Asbestos insulated; cool operation; weatherproof; corrosion-resistant.

Aluminum angle transformer mounting.

Heavy duty double-pole switch; listed by U. L.

Telnic bronze plugs and sockets for maximum current carrying capacity. Tapered heat taps are calibrated to exact amperage. Molded terminal insulators are mounted directly on nonconductive cabinet. Rubber cable sleeves.

Heavy duty lifting eye for easy overhead moving.

Furnished with 18-foot welding cable, insulated electrode holder, 12-foot ground cable, ground clamp, welding helmet, wall receptacle for power cable, 8½-foot power cable with plug, welding electrode assortment, instructions.

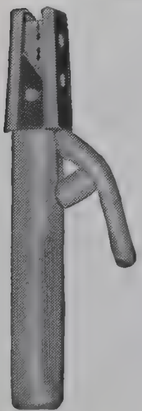
No.	EW91	*EW91C	EW92	*EW92C
Each	**$269.50**	**299.50**	**299.50**	**339.50**
Welding Range..amp.	20–200	20–200	25–275	25–275
Primary Input at Rated Load:				
Volts	230	230	230	230
Amperes	42.0	36.0	56.5	50.0
Kva	9.7	8.3	13.0	11.5
Kw	7.1	7.1	9.8	9.8
Hp	9.5	9.5	13.1	13.1
Rated Output, Duty Cycle, 20 Per Cent:				
Power Factor ....per cent	73	85	75	85
Arc Volts	30	30	30	30
Secondary Amp.	200	200	275	275
Electrode Sizes....in.	1/16–3/16	1/16–3/16	1/16–1/4	1/16–1/4
Shipping Weight...lb.	202	225	244	254

No. WA2115 Steel Wheel Running Gear

No. WA2115....................................each **$25.00**

*Capacitor equipped for high power factor correction to meet local power requirements.

Marquette Electrode Holders



No. 4, Industrial. For 500 amperes and up to ⅜-inch electrodes. Heavy duty welding. Phenolic-asbestos jaw covers. Length, 11 inches. Approximate shipping weight, 1¾ pounds.
Cat. No. WA2100.............each **$6.50**

No. 6, Industrial. For 300 amperes and up to ¼-inch electrodes. Adjustable spring tension. Insulated handle and jaw covers. Approximate shipping weight, 1¼ pounds.
Cat. No. WA2105.............each **$5.75**

No. 7, Featherweight. For 200 amperes and up to 3/16-inch electrodes. Lightweight; rugged. Length, 7¾ inches. Insulated handle and jaw covers.
Cat. No. WA2110.............each **$4.00**

Marquette Extension Cables

Power Cable

Maximum flexibility is obtained by proper stranding of the copper conductors and the omission of stiff, fibrous braids and filling. The smooth, clean outer surface does not collect and hold dirt and grease. It may be wiped clean when soiled. Rigid electrical tests are made during the manufacture of Marquette cables. The rubber covering protects the cable from outside injury.

Power cable is furnished with power plug and receptacle. Welding cable is furnished with cable plug and socket.

For Model Nos. 70, 71, 71C, 60, 60C, 261 and 261C Welders

Length Feet	Power Cable Extension No.	Each	Welding Cable Extension No.	Each
15	**WA2023**	**$17.00**	**WA2029**	**$8.50**
25	**WA2024**	**23.00**	**WA2030**	**12.50**
50	**WA2025**	**38.00**	**WA2031**	**22.00**

For Model Nos. 72, 72C and 262C Welders

15	**WA2026**	**$17.50**	**WA2032**	**$10.00**
25	**WA2027**	**23.50**	**WA2033**	**15.00**
50	**WA2028**	**39.00**	**WA2034**	**27.00**

For Model No. 262 Welders

15	**WA2090**	**$19.00**	....	.....
25	**WA2091**	**27.00**	....	.....
50	**WA2092**	**45.00**	....	.....

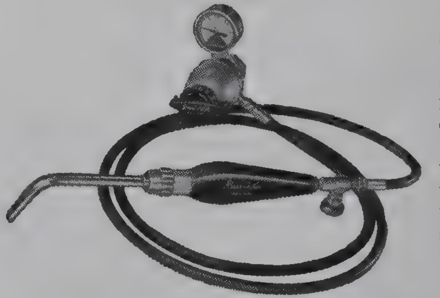
Extra Flexible Welding Cables

No.	Per Foot	Size No.	No.	Per Foot	Size No.
WA2036	**$.26**	4	**WA2039**	**$.48**	1
WA2037	**.32**	3	**WA2040**	**.60**	1/0
WA2038	**.39**	2	**WA2041**	**.72**	2/0

Three-Wire Power Cables

No. WA2044, Size No. 6......................per foot	**$.74**
No. WA2045, Size No. 8......................per foot	**.65**
No. WA2046, Size No. 10......................per foot	**.58**

Pres-O-Lite Plumbers' Outfits



For soldering sweat-type fittings, heating and brazing. For industrial or residential work.

Available with valve at rear of torch handle, or with combination shutoff valve and pilot flame control in front.

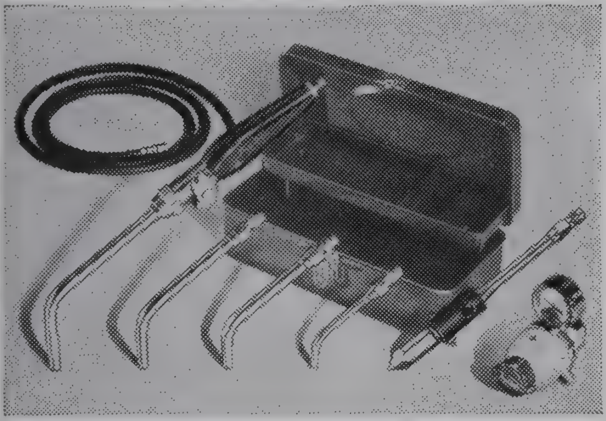
Outfit with No. 403 Torch Handle (Valve at Rear)

Part No. **30X37** for B Tank..................each	**$21.50**
Part No. **30X38** for MC Tank..................each	**21.50**

Outfit with No. 401 Torch Handle (Pilot Flame Control)

Part No. **30X11** for B Tank..................each	**$21.50**
Part No. **30X34** for MC Tank..................each	**21.50**

Prest-O-Lite 5-in-1 Outfits



Regulator automatically maintains selected pressure at torch, regardless of tank pressure. Lights instantly at full heat; no priming or pumping.

Heavy, medium, light and superfine stems provide a flame for every job. Also soldering iron stem with steady flame heat—constant heat copper for very light soldering in locations where use of an open flame is not practical.

Precision Models

Includes No. R-411B Regulator, No. 401 Handle, Nos. 1, 3, 4 and 5 Stems, No. 8 Soldering Iron Stem, 6 Feet of Fitted Hose and Metal Carrying Case; Order Part No. 30X01................each $33.75

Same Outfit as Above, but with No. R-411MC instead of No. R-411B Pressure Regulator; Order Part No. 30X02...........................each 33.75

Standard Model

Includes No. 402 Handle, Nos. 1, 3, 4 and 5 Stems, No. 8 Soldering Iron Stem, 6-Foot Fitted Hose Assembly, B Tank Union, MC Tank Union and Metal Carrying Case; Order Part No. 30X03..each 23.25

Prest-O-Lite Compressed Air Torches and Outfits

Prest-O-Lite

For dental and laboratory work; soldering and lead burning in battery shops, auto radiator repairing; long brush flame or short needle-point flame. No. 3647-A operates on acetylene and compressed air or on acetylene alone; No. 01P14, on acetylene and compressed air.

No. **3647-A**, Torch with No. 1 Mixer...........each $12.00

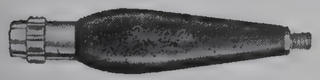
No. **01P14**, Torch with No. 2 Mixer............each 12.00

No. **3746-0** Outfit, Includes 3647-A Torch, B Tank Union, Two 6-Foot Lengths of ¼-Inch Hose and Four Hose Clamps.......................each 14.75

No. **01P15** Outfit, Same as No. 3746-0 Outfit except with No. 01P14 Torch......................each 14.75

Prest-O-Lite Torch Handles

No. 401



No. 402

By using different combinations of Nos. 401 and 402 handles and nine stems, all of which are interchangeable, a special torch or outfit can be made to suit any type of work.

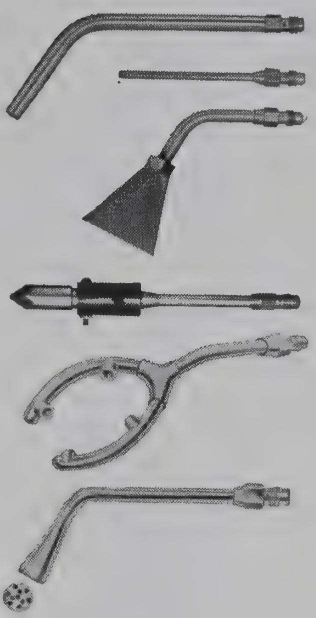
Nos. 401 and 402 handles are identical, except that the No. 401 has a shutoff valve and built-in pilot flame control. Captive stem connection nut locks finger-tight for fast stem changes without wrench. Inlet takes standard A size (left-hand thread) welding hose connection.

Durable plastic grip will not burn, crack, shrink, or become loose.

No. **401**, Part No. 02X83.......................each $6.00

No. **402**, Part No. 02X84.......................each 3.75

Prest-O-Lite Air Acetylene Torch Stems



Torch stems are interchangeable on handles.

No. 6, Extra Heavy. For installing Solder-type Fittings in Large Diam. Copper Pipe, 3 In. and Up; Part No. 10X26...........each $2.25

No. 5, Heavy. For Loosening Rusted Studs, Nuts, Bolts. For Thawing Frozen Water Pipe; Part No. 10X25...........each 2.00

No. 4, Medium. For Auto-body and Fender Work; Sweating Solder-type Joints in ¾ to 1½-in. Copper Pipe; Part No. 10X24..........each 2.00

No. 3, Light. Light Sheet Metal, Telephone Maintenance Work; Wire Splicing, Making Solder Joints in ⅜ to ½-In. Piping; Part No. 10X23..each 2.00

No. 3MF Multiflame. Preheating, Melting, Sweating Large Copper Pipe Ftgs. 10 Flame Ports in Concentric Circles on ¾-In. Diam. Tip Face; Part No. 10X35..........each 2.50

No. 2 Fine. For Soldering Toys, Automobile Radiator Fins; Part No. 10X22......................each 2.00

No. 1, Superfine. For Telephone Switchboard, Radio and Television Work. Part No. 10X21...each 2.00

No. 7, Fine. Same Stem as No. 2 but With Straight Tip; Part No. 10X27..........................each 2.00

No. 8 Soldering Iron. For Very Light Work in Locations Where Use of an Open Flame is not Practical; Part No. 10X28..................................each 5.00

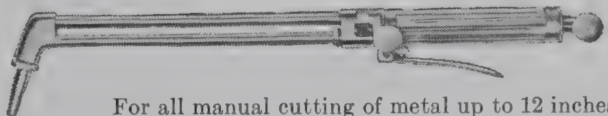
No. 8-C Soldering Iron. Same as No. 8 but With Chisel Head; Part No. 10X37.................each 5.00

No. 9, Paint Burner. Softens any Paint Coat for Easy Removal by Scraping. Also Used to Soften Asphalt Floor Tiles; Part No. 10X29...........each 5.50

No. 10 Multiflame (Stag Horn). A Wrap-around Type Stem for Quick Heating. 4 Flame Ports, ⁷⁄₆₄-In. Size, Diametrically Opposed at Intervals of 75 and 105 degrees; Part No. 10X36.......................each 6.00

No. C-112 Prest-O-Weld Cutting Blowpipes

For General Purpose Cutting



For all manual cutting of metal up to 12 inches thick; used with acetylene, liquified petroleums, city gas and natural gas. Front end is easily removable; choice of interchangeable head angles, 75°, 90°, and 180°.

Approximate shipping weight, 5 pounds.

No. **C-112**, Cutting Blowpipe with Nos. 4, 5, 7, and 11 Nozzles: 75° Head, Part No. 04L10; 90° Head, Part No. 04L12.............................each $49.50

No. **C-112**, Cutting Blowpipe with Nos. 4, 5, 7 and 11 Nozzles: 180° Head, Part No. 04L15.......each 55.00

No. **C-112**, Cutting Blowpipe without Nozzles: 75° Head, Part No. 04L09; 90° Head, Part No. 04L11 ....each 37.50

No. **C-112**, Cutting Blowpipe without Nozzles: 180° Head, Part No. 04L14.....................each 45.00

No. **C-112**, Extra Long Cutting Blowpipe with 90° Head, Part No. 04L13.......................each 50.00

Front Ends

No.	1048	1053	1054
Each	$18.00	12.00	12.00
Angle......degrees	180	75	90

Prest-O-Lite Small Gas Tanks

Style B

Style MC

Prest-O-Lite Gas Tanks are steel cylinders charged with pure, dry acetylene which is ready for instant use at the turn of a valve.

These small tanks contain no free acetylene. They are packed with a porous filler, which is saturated with a liquid chemical capable of absorbing many times its own volume of acetylene. The acetylene in the tank is dissolved in this liquid solvent and remains in solution until the valve is opened, which permits the acetylene to be drawn off.

The flow of acetylene is controlled by a key-operated valve and can be turned on and off with the same convenience as city gas.

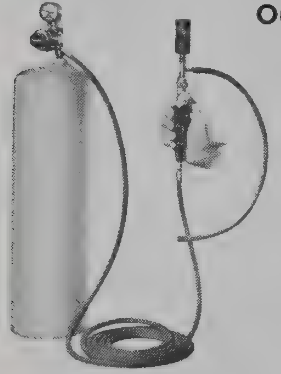
Prest-O-Lite Gas is freezeproof, and can be used in any kind of weather, both indoors and out.

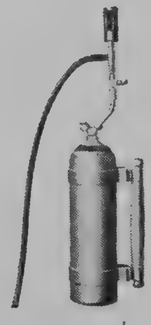
The empty tanks can be exchanged at any Prest-O-Lite Gas Exchange Service Station for full tanks, by paying for the gas only.

Style		B	MC
*Tank	each	**$21.00**	**14.00**
Exchange	each	**2.85**	**1.10**
Length Including Valve	inches	25	15
Diameter	inches	6¼	4
Rated Capacity	cubic feet	40	10
Average Weight	pounds	32½	9½

*Tank price includes tank, initial charge of gas and valve wrench. Exchange price is for gas only.

Prest-O-Lite Halide Leak Detector Outfits


For B Tank


For MC Tank

Locates leaks in refrigerating and air-conditioning units. Reacts instantly to small concentrations of any non-combustible halide refrigerant gases and Carrene. Also detects methyl bromide vapors where concentrations are less than 10 per cent, and when precautions are taken.

Color and intensity of flame indicate amount of gas vapor present. Flame clears quickly after exposure to gas or vapor.

For 40-Cubic Foot B Tank

Tank can be left outside when detector is connected to tank by a length of hose. A regulator must be used to prevent subjecting hose and connections to full tank pressure.

Includes No. 401 torch handle, leak detector stem, No. R-411B pressure regulator, 12½-foot, $\frac{3}{16}$-inch, A size fitted hose assembly and 3-foot, ¼-inch suction hose.

Part No. **30X09**....................................each **$26.25**

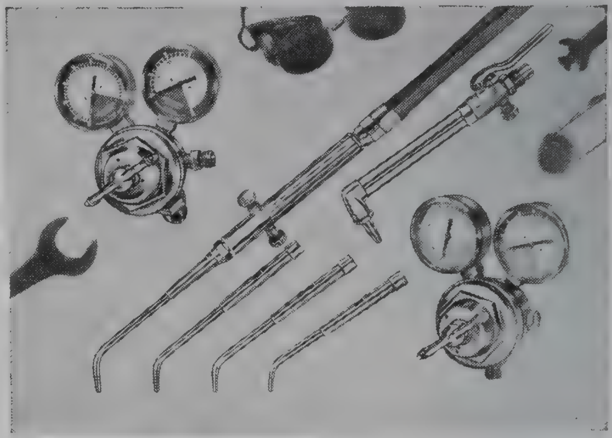
For 10-Cubic Foot MC Tank

Furnished ready for mounting on MC Tank. An MC tank handle (shown in illustration) can be furnished, extra.

Includes leak detector stem, MC detector adaptor with needle valve and 3-foot, ¼-inch suction hose.

Part No. **30X10**....................................each **$11.50**

No. W-109 Prest-O-Weld Welding and Cutting Outfits



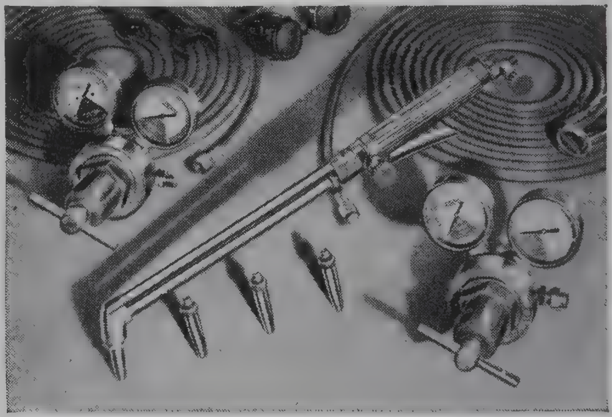
For aircraft and light welding. Welds any thickness from 24 gage to $\frac{3}{16}$ inch and cuts steel up to 1 inch thick.

Outfit consists of: No. W-109 welding blowpipe with Nos. 2, 3, 4, and 5 welding heads; No. CW-109 cutting attachment with No. 1 nozzle; No. R-125 oxygen regulator; No. R-127 acetylene regulator, $\frac{3}{16}$-inch oxygen and acetylene hose with fittings, goggles, friction lighter and instruction manual.

Approximate shipping weight, 22 pounds.

No. W-**109** Welding and Cutting Outfit, Complete with 25-Foot Hose Lengths, Order No. 21X28	each	**$114.50**
With 25-Ft. Dbl. Hose Lgths., Order No. 30X29	each	**116.50**
No. W-**109** Welding Outfit, Same as above, but without Cutting Attachment and Nozzle—With 25-Foot Hose Lengths, Order No. 07X37	each	**92.50**
With 25-Foot Double Hose Lgths., Order No. 30X27	each	**94.50**
With 12½-Ft. Hose Lgths., Order No. 21X16	each	**88.50**
With 12½-Ft. Dbl. Hose Lgths., Order No. 30X28	each	**90.00**

No. C-112 Prest-O-Weld Cutting Outfits



This heavy duty outfit easily and economically cuts steel and wrought iron up to 12 inches thick.

Outfit consist of: No. C-112 blowpipe with Nos. 4, 5, 7 and 11 nozzles; No. R-102 cutting oxygen regulator; No. R-103 acetylene regulator; 25 feet of ¼-inch oxygen hose with fittings; 25 feet of ¼-inch acetylene hose with fittings, goggles, friction lighter, wrenches and instruction manual.

Approximate shipping weight, 29 pounds.

No. C-**112** Cutting Outfit with Single Hose: With Blowpipe, 75° Head, Order No. 07X41	each	**$132.50**
With Blowpipe, 90° Head, Order No. 30X17	each	**132.50**
No. C-**112** Cutting Outfit with Double Hose: With Blowpipe, 75° Head, Order No. 30X25	each	**133.50**
With Blowpipe, 90° Head, Order No. 30X26	each	**133.50**

No. W-122 Prest-O-Weld Welding and Cutting Outfits

For general welding and limited amount of cutting in light and medium ranges. Has large-capacity blowpipe and heavy duty regulators, sturdily built for long, dependable service.

Standard outfit consists of: five welding heads and two cutting nozzles that weld metals from 1/16 to 1-inch thick and cut steel up to 1½-inches thick. Eight other sizes of heads and five additional nozzles are also available at extra cost. The additional heads give the blowpipe a complete welding range, from 32-gage sheet to plate over 1-inch thick. The extra nozzles extend the range of the cutting attachment to 8-inch thicknesses of steel and wrought iron.

No. W-122 welding and cutting outfit consists of: No. W-122 welding blowpipe with Nos. 9, 15, 30, 40 and 70 welding heads, No. CW-122 cutting attachment with Nos. 4 and 5 nozzles, No. R-109 oxygen regulator, No. R-103 acetylene regulator, ¼-inch oxygen and acetylene hose with fittings, goggles, friction lighter, wrenches and instruction manual.

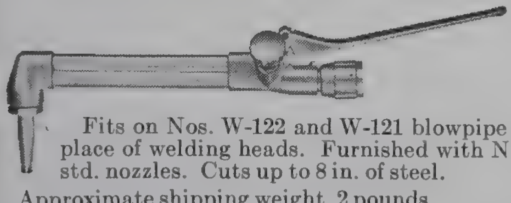
No. W-**122** Welding and Cutting Outfit, Complete with 25-Foot Hose Lengths, Order No. 20X64. Approx. Ship. Wt. 34 Pounds..................each **$154.00**

Complete with 25-Foot Double Hose Lengths, Order No. 30X21. Approx. Ship. Wt. 34 Lb....each **155.00**

No. W-**122** Welding Outfit, Same as above but without Cutting Attachment and Nozzles—With 25-Foot Hose Lengths, Order No. 20X62. Approx. Ship. Wt. 32 Lb............................each **124.00**

With 25-Foot Double Hose Lengths, Order No. 30X20. Approx. Ship. Wt. 32 Pounds.......each **125.00**

No. CW-122 Prest-O-Weld Cutting Attachments



Fits on Nos. W-122 and W-121 blowpipe handles in place of welding heads. Furnished with Nos. 4 and 5 std. nozzles. Cuts up to 8 in. of steel.

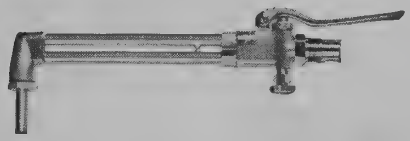
Approximate shipping weight, 2 pounds.

No. CW-**122**, Cutting Attachment with Nozzles: 90° Head Part No. 05L08; 75° Head Part No. 05L12.ea. **$30.00**

No. CW-**122**, Cutting Attachment without Nozzles: 90° Head, Part No. 05L07; 75° Head, Part No. 05L11.......................................each **24.00**

No. CW-**122**, Cutting Attachment without Nozzles: 180° Head, Part No. 05L15...................each **30.00**

No. CW-109 Prest-O-Weld Cutting Attachments



Attaches directly to the No. W-109 blowpipe handle in place of welding head. Designed especially for the cutting of sheet metal and light plate up to 1 inch thick.

Nos. 0 and 1, small size nozzles are available, specially designed for cutting of thin material.

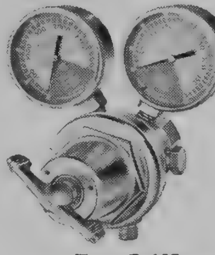
Overall length, 9⅞ inches, including lever.

Furnished with cutting-oxygen valve, easily removed mixer, 90° head, and one cutting nozzle.

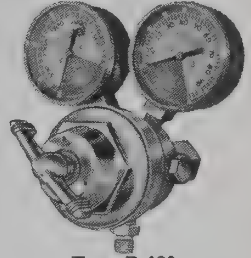
Approximate shipping weight, 1 pound.

No. CW-**109**, with No. 1 Nozzle, Order No. 05L06.ea. **$22.00**

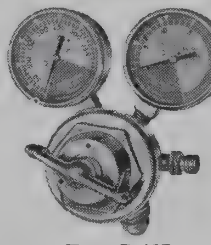
Prest-O-Weld Pressure Regulators Standard Series



Type R-125



Type R-126



Type R-127

Handle all welding and cutting work.

The Standard series regulators are the detached stem type, valve closes with the pressure. Pressure adjusting springs provide accurate delivery in both high and low pressure ranges.

Oxygen

No. R-125, for light-to-medium welding, also used for light cutting.

No. **R-125.** Welding and Cutting Regulator with 100 and 3000-Pound Gauges, Order Part No. 04X38...............each **$27.00**

No. R-126, designed to deliver higher working pressures than No. R-125. Intended for use on all except heaviest cutting operations.

No. **R-126**, Welding and Cutting Regulator, with 400 and 3000-Pound Gauges, Order Part No. 04X44.ea. **$27.00**

Acetylene

No. R-127, companion regulator for Nos. R-125 and R-126. Easily handles all welding and cutting within the range of those oyxgen regulators.

No. **R-127**, Welding and Cutting Regulator with 30 and 400-Pound Gauges, Order Part No. 04X39.each **$25.00**

Station Service

Nos. R-128 and R-129, have same capacity as Nos. R-125 and R-127 regulators, but are fitted with a working pressure gauge only.

No. **R-128** Welding and Cutting Regulators with 100-Pound Gauge, Order Part No. 04X55........each **$22.00**

No. **R-129**, Welding and Cutting Regulators with 30-Pound Gauge, Order Part No. 04X56........each **22.00**

Hydrogen, Methane and Natural Gas

Nos. R-130 and R-130EH for use with high pressure fuel gases as companions for Nos. R-125 and R-126 oxygen regulators.

No. **R-130**, Welding and Cutting Regulator, with 100 and 3000-Pound Gauge, Order Part No. 04X62.ea. **$27.00**

No. R-130EH Welding and Cutting Regulators with 100 and 3000-Pound Gauge, Order Part No. 04X63 ....each **27.00**

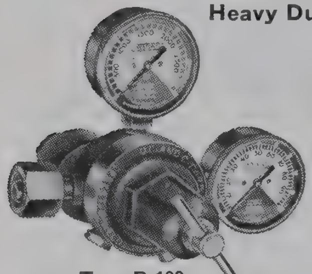
Propane or Butane

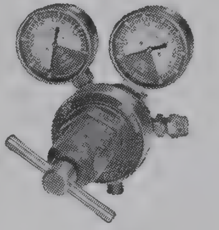
No. R-131, companion regulator for Nos. R-125 or R-126 oxygen regulators when a liquified petroleum is used as a fuel gas source.

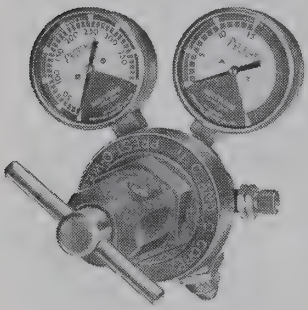
No. **R-131**, Welding and Cutting Regulator with 30-Pound Gauge, Order Part No. 04X64........each **$22.00**

Prest-O-Weld Pressure Regulators

Heavy Duty Series


Type R-109


Type R-102


Type R-103

Rugged construction, with extra-large capacities to handle heaviest jobs. Have stem-type valves which close with instead of against pressure.

Oxygen

No. R109, a two-stage oxygen regulator. Range: light gage sheet metal to heavy casting; also cutting from light to 4-in. steel.

No. R-**109**, Welding and Cutting Regulator with 100 and 3000-Pound Gauges, Order Part No. 4960........each **$37.00**

No. R-102, intended for all cutting up to 10 inches thick. Designed to deliver high pressures required for heavier jobs Not recommended for welding, particularly in lighter ranges.

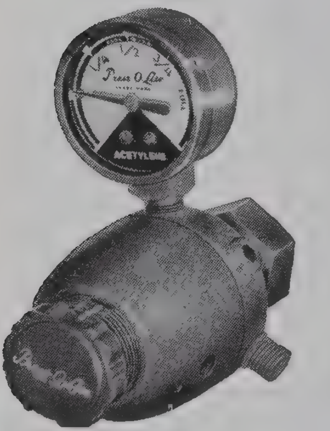
No. R-**102**, Cutting Regulator with 400 and 3000-Pound Gauges, Order Part No. 4021.........each **35.00**

Acetylene

No. R-103, companion regulator for the R-102 and R-109 oxygen regulators. Handles all welding and cutting.

No. R-**103**, Welding and Cutting Regulator with 30 and 400-Pound Gauges, Order Part No. 4022..each **$31.00**

Prest-O-Lite Regulators



Secures exact flame desired, and holds flame without intermittent readjustment of tank valve to compensate for reduced tank pressure. Adjustable to deliver gas at any pressure up to 13 psi. Lettered graduations, on shank of pressure adjusting screw. Brass gauge indicates tank contents.

Outlet takes A size standard welding hose connection nut and nipple.

Shipping wt., 1¼ lb.

No. R-**411**B, Fits B Tank, Order No. 04X36 ea. **$10.25**

No. R-**411**MC, Fits MC Tank, Order No. 04X37 ea. **10.25**

Oxweld Welding Hose

Corrugated, made of first quality rubber, vulcanized under pressure into fabric. Light, durable, flexible, tough,

and non-blooming; practically immune to deterioration from sunlight and weather. For most welding and cutting, ¼-inch hose recommended; for light welding $\frac{3}{16}$-inch; for heavy cutting or long hose runs, ⅜-inch.

In 12½ foot lengths and multiples.

Description	Per 100 Ft.
$\frac{3}{16}$-Inch, **1**-Braid, Oxygen	**$15.71**
$\frac{3}{16}$-Inch, **1**-Braid, Acetylene	**15.71**
¼-Inch, **2**-Braid, Oxygen	**22.72**
¼-Inch, **2**-Braid, Acetylene	**22.72**
⅜-Inch, **2**-Braid, Oxygen	**27.86**
⅜-Inch, **2**-Braid, Acetylene	**27.86**

Linde Cutting Nozzles

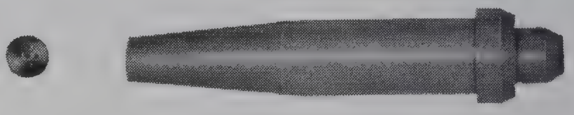
For General Purpose Cutting

Made from hard-drawn copper to withstand heat and wear. Internal passages are accurately sized for maximum efficiency and economy. Seats are not easily nicked or damaged.

Nozzle is swaged, or shaped by pressure in many stages. When final swaging operation is completed, all passages have a mirrorlike inside finish and rounded angles that assure a smooth and uninterrupted flow of gas. Produces preheat flames that are dependably stable and easily controlled. Tips can be dressed and redressed many times without affecting performance.

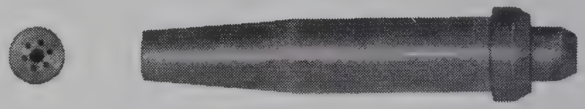
Nozzles for general-purpose cutting are available in 9 sizes and 6 styles. All acetylene nozzles, fit the C-112 blowpipe and CW-122 Cutting attachment. All nozzles for fuel gases other than acetylene are for use with the C-112 cutting blowpipe only.

4201 Series—Acetylene



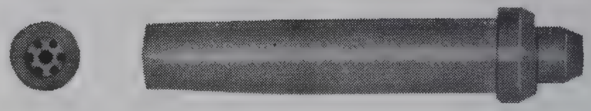
*Size	Part No.	Each	No. of Preheat Holes	For Metal Thickness Inches	Cleaning —Drill Size— Cutting	Cleaning —Drill Size— Preheat
3	16K05	**$3.25**	4	up to ¼	68	75
4	16K06	**3.25**	4	⅜ to ⅝	60	73
5	16K07	**3.25**	4	¾ to 1½	55	69
.	16K11	**3.25**	4	....	..	..

4202 Series—Acetylene



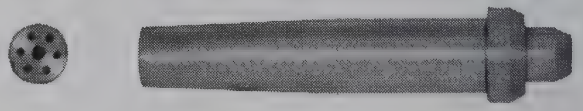
3	16K08	**$3.25**	6	up to ¼	68	75
4	16K09	**3.25**	6	⅜ to ⅝	60	73
5	16K10	**3.25**	6	¾ to 1½	55	69
7	16K11	**3.25**	6	1½ to 4	50	68
9	16K12	**3.25**	6	4 to 6	43	64
11	16K13	**3.25**	6	6 to 10	35	60
13	16K14	**3.25**	6	10 to 12	30	56

4203 Series—Liquefied Petroleum: Propane, Butane



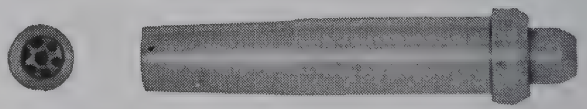
4	16K15	**$3.25**	6	up to ⅝	60	68
5	16K16	**3.25**	6	¾ to 1½	55	59
7	16K17	**3.25**	6	1½ to 4	50	56
9	16K18	**3.25**	6	4 to 6	43	55
11	16K19	**3.25**	6	6 to 10	35	54
13	16K20	**3.25**	6	10 to 12	30	53

4204 Series—Hydrogen



4	16K21	**$3.25**	6	up to ⅝	60	69
5	16K22	**3.25**	6	¾ to 1½	55	59
7	16K23	**3.25**	6	1½ to 4	50	56
9	16K24	**3.25**	6	4 to 6	43	55
11	16K25	**3.25**	6	6 to 10	35	54

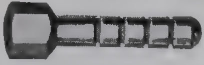
4208 Series—City Gas, Methane, Natural Gas



4	16K36	**$3.25**	6	up to ⅝	60	60
5	16K37	**3.25**	6	¾ to 1½	55	55
7	16K38	**3.25**	6	1½ to 4	50	53
9	16K39	**3.25**	6	4 to 6	43	52
11	16K40	**3.25**	6	6 to 10	35	50

*Size Number denotes diameter of cutting oxygen orifice in nearest hundredth of an inch.

No. 6341-L Prest-O-Lite Hose Nipples

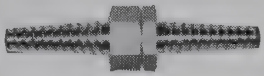


For medium soldering irons, precision model; for old style fixed pressure regulators, and for No. 1 torch handle. Size, ¼ inch.

Approximate shipping weight, 4 ounces.

No. **6341-L**....................................each **$.30**

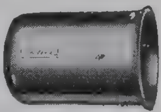
Oxweld Ferrule Type Hose Splices



No.	03Z82	10Z01	10Z02	10Z12
Each	$.75	.75	.75	.75
Size.....inches	3⁄16	¼	⅜	¼ to 3⁄16

Oxweld Hose Clamps, Ferrules and Braces

Clamp



Ferrule

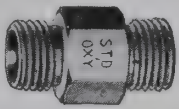
Ferrule, for Hose 3⁄16-In. Order No. 52A18; ¼-In. Order No. 39Z13; ⅜-In. Order No. 4793.each **$.10**

Brace, For Hose ¼-In. Order No. 68Z-79; 3⁄16-In. Order No. 82Z09....each **$.10**

Clamp, for Hose 3⁄16, ¼, ⅜-In........ **.10**

Oxweld Hose Connection Couplings

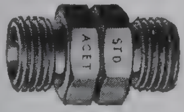
No. 6978, Oxygen, Righthand Threads



For couplings two lengths of oxygen hose having A and B size I.A.A. standardized connections.

No. **11Z39**, For A Size Connections..............each **$.50**
No. **6978**, For B Size Connections...............each **.40**

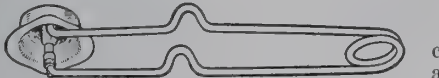
No. 6979, Acetylene, Lefthand Threads



For coupling two lengths of acetylene hose having A and B size I.A.A. standardized connections.

No. **11Z40**, For A Size Connections..............each **$.50**
No. **6979**, For B Size Connections...............each **.40**

No. 2001 Shurlite Round File Lighters



For igniting acetylene, natural and artificial gas, and other vapor burning fuels. For dependable torch lighting and long service under heavy usage.

Made of hard steel wire which will retain tension throughout life of lighter. Round file may be turned to provide a new surface for flint. Hood protects file and forms a pocket for gas. Flint tip can produce 1500 ignitions before replacement is necessary. Equipped with 6/40 threads for easy replacement. Flint is quality ferrocerium.

Overall length, 8 inches.
Packed 1 dozen to a box.

Ship. wt., 2¼ pounds per dozen; 23 pounds per gross.
No. **2001**...each **$.30**

Renewals

No. 2001X, Standard Renewals. Each renewal is capable of producing 1500 ignitions.

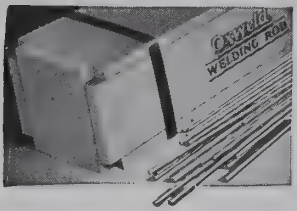
No. 2501X, Heavy Duty Renewals. Each renewal is capable of producing 2000 ignitions.

Packed 24 metal boxes of 6 each in 1 gross package. Also packed in bulk 1 gross and 100 to container.

Approximate shipping weight, 12 ounces per gross.

No. **2001X**, Std., Two for 15 Cents.........per dozen **$.80**
No. **2501X**, Heavy Duty; 10 Cents Each...per dozen **1.00**

Oxweld Welding Rods



Furnished in 36-in. lengths, except No. 9 which is furnished in 24-in. lengths and No. 49 which is furnished in 18-in. lengths. Steel, cast iron and bronze welding rods packed in 100-lb. boxes. Aluminum rods packed in 50-lb. packages, each containing ten 5-lb. cartons.

No. 1 High Test Steel Rod

For welding steel plate, sheet, structural shapes, pipe and steel castings.

Diameter.......inches	⅜	5⁄16	¼	3⁄16	⅛	3⁄32	1⁄16
No. **1**...per 100 pounds	$27.	27.	27.	27.	27.	29.	31.

No. 7 Drawn Iron Rod

Copper coated, for steel plate, structural shapes, pipe.

Diameter.......inches	¼	3⁄16	⅛	3⁄32	1⁄16
No. **7**...per 100 pounds	$27.00	27.00	28.00	30.00	32.00

No. 9 Cast Iron Rod

For fusion welding gray iron castings.

Diameter..................inches	⅜	5⁄16	¼	3⁄16
No. **9**..................per pound	$.32	.33	.35	.40

No. 14 Drawn Aluminum Rod

For sheet aluminum and 2S, 3S and 4S aluminum–manganese alloys.

Diameter............inches	¼	3⁄16	⅛	3⁄32	1⁄16
No. **14**...........per pound	$1.13	1.18	1.23	1.33	1.58

No. 23 Drawn Aluminum Rod

For cast and sheet aluminum and aluminum alloys.

Diameter............inches	¼	3⁄16	⅛	3⁄32	1⁄16
No. **23**...........per pound	$1.15	1.20	1.25	1.35	1.60

No. 32 CMS Steel Rod

For high strength, high speed welding of pressure vessels, tanks and steel by Linde's steel welding process.

Diameter......inches	5⁄16	¼	3⁄16	⅛	3⁄32	1⁄16
No. **32**.per 100 pounds	$35.50	35.50	35.50	36.50	37.50	39.50

No. 19 Cupro Rod

For rail bonding and metal furniture manufacture.

Diameter.........................inches	3⁄16	⅛
No. **19**....................per 100 pounds	$109.56	119.31

No. 25M Bronze Rod

For high strength welds in copper, brass or bronze and for bronze welding malleable iron, steel or cast iron.

Diameter..........in.	⅜	¼	3⁄16	⅛	3⁄32	1⁄16
No. **25M**....per 100 lb.	$80.57	88.82	93.32	103.07	116.32	136.57

No. 25M Flux-Coated Bronze Rod

Pre-coated with Brazò flux. Assures correct fluxing.

Diameter..................inches	¼	3⁄16	⅛
No. **25M**..........per 100 pounds	$101.82	106.32	116.07

No. 26 Bronze Rod

For Everdur and other silicon bronzes in plate, sheet and castings.

Diameter..........in.	¼	3⁄16	⅛	3⁄32	1⁄16
No. **26**.....per 100 lbs.	$98.78	103.28	113.03	126.28	146.53

No. 31T Bronze Rod

For building up wear-resisting surfaces subject to heavy loading especially where elevated temperatures are met.

Diameter.........................inches	⅜	¼
No. **31T**..................per 100 pounds	$85.09	93.34

No. 60 Columbium-Bearing 18-8 Stainless Steel Rod

For titanium or columbium-bearing 18-8 stainless steels and untreated stainless steels.

Diameter..................inches	⅛	3⁄32	1⁄16
No. **60**.................per pound	$1.64	1.73	1.95

No. 49 White Metal Rod

For oxy-acetylene welding of die castings. Also welds most aluminum and magnesium-base die-casting alloys.

Diameter..........................inches	⅛	3⁄16
No. **49**.......................per pound	$3.00	2.50

No. 28 Columbium-Bearing 18-8 Stainless Steel Rod

For titanium or columbium-bearing 18–8 stainless steels and untreated stainless steels.

Diameter............inches	¼	3⁄16	⅛	3⁄32	1⁄16
No. **28**...........per pound	$1.34	1.42	1.60	1.69	1.91

No. 65 Steel Rod

For high-strength welding of all commercial grades of low-carbon steel.

Diameter..................inches	⅛	3⁄32	1⁄16
No. **65**.............per 100 pounds	$42.50	45.50	49.50

Anti-Borax Oxy-Acetylene Welding and Brazing Fluxes

ONE POUND
ANTI-BORAX
WELDING
FLUX

Welding fluxes prevent oxidation, eliminate blow holes, etc. Brazing fluxes cause spelter to penetrate deeper into joint.

ONE POUND
ANTI-BORAX
BRAZING
FLUX

No.	Description	1-Lb. Can Per Lb.	5-Lb. Can Per Lb.
1	Cast Iron Welding Flux	$.65	$.60
2	Brazing Flux, for Brass, Bronze, Steel, Malleable Iron, Etc.	.70	.65
3	Brass or Bronze Welding Flux	.70	.65
7	Steel Welding Flux	.60	.55
9	Stainless Steel Flux for Steel Containing Chromium, Copper or Nickel	2.00	...

No.	Description	¼-Lb. Can Each	½-Lb. Can Each	1-Lb. Can Each
5	Extra Quality Cast Aluminum Welding Flux	$.70	$1.30	$2.50
4	Braz-Cast Flux for Bronze Welding Cast Iron	...	.85	1.35
*8	"A.B.C." Sheet and Wrought Aluminum Welding Flux	.70	1.30	2.50
†16	Silver Solder Paste Flux	...	.90	1.70

*No. 8 is furnished in bottles instead of in cans.
†No. 16 is furnished in jars instead of in cans.

No. 14 Marquette Welding Helmets

Hand Type

Made from heavy durable fiber.

Designed to give full protection from side light with plenty of room for movement of the face.

Has a spring catch for easy changing of lenses.

Furnished with shade No. 10 lens, for electric welding of 150 to 200 amperes.

Weight, 2 pounds.

No. **14**, Stock No. WA 2062....................each **$4.10**

No. 20 Marquette Fiberglas Deluxe Welding Helmets

One-piece, molded construction. Large plastic knobs with tension springs on each side of helmet give quick, easy tension adjustment. Well-padded, full width, adjustable chin rest. Flip-up lens. No. 10 shade lens will be furnished unless otherwise specified.

Head size adjustment by turning knob on headband; sprocket and gear adjustment gives full range of head sizes. Tension spring plate locks head size setting. Double sliding spring clips hold cover glass and lens securely in frame and provide quick lens change. Replaceable cushioned sweat band.

Shipping weight, 2⅜ pounds.

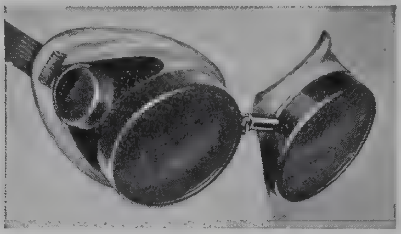
No. **20**, Stock No. WA2060-1....................each **$10.75**

PHONE OR WRITE

us regarding your

WELDING PROBLEMS

No. RW50 Willson Welding Goggles



Rugged, well-built goggles with 50 mm. Willson-Weld and clear cover lenses. Conform to U.S. Federal Specifications. Eye cups are anatomically shaped to fit over orbital cavity and are heat and moisture-proof. Patented indirect ventilating ports, keeping out injurious light flashes, sparks, etc. All metal parts are treated to resist corrosion. Adjustable chain bridge. One-piece adjustable elastic headband. Composition lens retaining rings are standard, metallic furnished when specified.

Packed 1 pair in a cardboard box.

No. RW50....................................per pair **$2.60**

Willson Spectacle Type Safety Goggles

For operations where durability is important.

Wire adjustable nose bridge is so designed that it can be fitted comfortably to the bone structure of any face. Has 50 mm. super-tough lenses which are securely held in the flange type rims.

Has reinforced wire screen sideshields. Can be furnished with leather, clear or tinted Sonite sideshields.

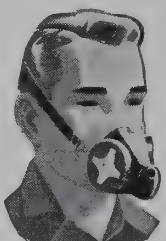
Packed in a cardboard box.

No. **S150**, with Padded Cable Temples..........each **$2.20**
No. **S250**, with Adjustable Elastic Headband....each **2.20**

Available at extra cost with Willsonite super-tough or plastic lenses.

No. 4 Dupor Respirators

For protection against light concentrations of dusts or paint spray. Free from harmful gases. Worn by those who handle coal, cement, chalks, powders, etc.



Face piece is made of pliable, high quality rubber which assures air-tight fit on any shaped face. Rubber flap valve is fully protected in bulb type housing formed integrally at front of respirator. Headbands are of durable elastic material that can be adjusted to any size.

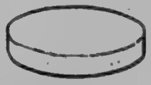
Comfort inducing face cloth is of soft knitted material that can be laundered. Cloth provides protection against chafing or dermatitis, due to wearing respirators over long periods of time.

Bulb type exhalation valve guards against re-breathing stale air. Respirator is no hindrance to conversation. It folds to fit pocket. An extra flap valve is provided with each respirator.

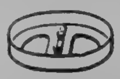
Weight, 4 ounces.

No. **4**...each **$2.00**

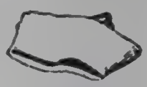
Extra Parts



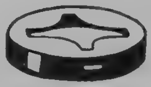
Filter Pads (2)



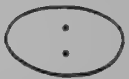
Exhale Valve Frames



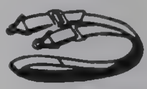
Face Cloths



Filter Pad Retainer Rings



Exhale Valve Flaps



Complete Headbands

Filter Pads	each	$.10
Exhale Valve Frames	each	.10
Face Cloths	each	.08
Filter Pad, Retainer Rings	each	.15
Exhale Valve Flaps	each	.03
Headbands, Complete	each	.15

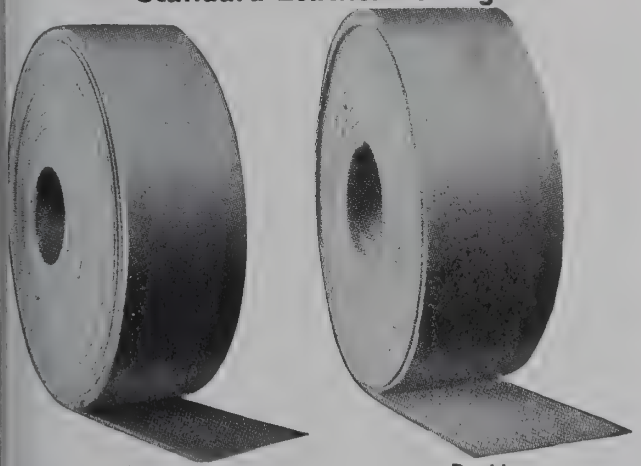
Standard Rubber Belt List

Per Foot

Size, In.	2-Ply	3-Ply	4-Ply	5-Ply	6-Ply	7-Ply	8-Ply
1	$.18	$.20	$.24	.....	.....	.....	.....
1¼	.23	.26	.30	.....	.....	.....	.....
1½	.27	.31	.36	$.45	.....	.....	.....
1¾	.32	.36	.42	.53	.....	.....	.....
2	.34	.39	.46	.58	$.69	.....	.....
2½	.42	.48	.56	.70	.84	.....	.....
3	.48	.55	.65	.81	.98	.....	.....
3½	.57	.65	.76	.95	1.14	.....	.....
4	.61	.70	.82	1.03	1.23	$1.44	.....
4½	.68	.78	.92	1.15	1.38	1.61	.....
5	.76	.87	1.02	1.28	1.53	1.79	$2.05
6	.91	1.04	1.22	1.53	1.83	2.14	2.44
7	1.08	1.22	1.43	1.79	2.15	2.50	2.86
8	1.15	1.31	1.54	1.93	2.31	2.70	3.08
9	1.29	1.47	1.73	2.16	2.60	3.03	3.46
10	1.43	1.63	1.92	2.40	2.88	3.36	3.84
11	1.57	1.79	2.11	2.64	3.17	3.69	4.22
12	1.72	1.96	2.30	2.88	3.45	4.03	4.60
13	1.86	2.13	2.50	3.13	3.75	4.38	5.00
14	2.00	2.29	2.69	3.36	4.04	4.71	5.38
15	2.14	2.45	2.88	3.60	4.32	5.04	5.76
16	2.29	2.62	3.08	3.86	4.62	5.40	6.16
18	2.57	2.94	3.46	4.32	5.20	6.06	6.92
20	2.85	3.26	3.84	4.80	5.76	6.72	7.68
22	3.14	3.59	4.22	5.28	6.34	7.38	8.44
24	3.42	3.91	4.60	5.76	6.90	8.06	9.20
26	3.72	4.25	5.00	6.26	7.50	8.76	10.00
28	4.00	4.57	5.38	6.72	8.08	9.42	10.76
30	4.29	4.90	5.76	7.20	8.64	10.08	11.52
32	4.59	5.24	6.16	7.72	9.24	10.80	12.32
34	4.86	5.55	6.53	8.18	9.82	11.46	13.08
36	5.15	5.88	6.91	8.64	10.40	12.12	13.84
38	5.43	6.21	7.30	9.14	10.96	12.78	14.60
40	5.71	6.54	7.68	9.61	11.52	13.44	15.36
42	6.00	6.85	8.06	10.09	12.10	14.10	16.12
44	6.27	7.17	8.44	10.56	12.68	14.76	16.88

Prices on heavier plies upon application.

Standard Leather Belting



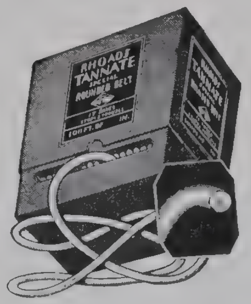
		Single					Double	
Width Inches	Single per Ft.	Double per Ft.	Width Inches	Single per Ft.	Double per Ft.	Width Inches	Single per Ft.	Double per Ft.
½	$.24	$.48	6	$2.88	$5.76	34	$16.32	$32.64
¾	.36	.72	7	3.36	6.72	36	17.28	34.56
1	.48	.96	8	3.84	7.68	38	18.24	36.48
1¼	.60	1.20	9	4.32	8.64	40	19.20	38.40
1½	.72	1.44	10	4.80	9.60	42	20.16	40.32
1¾	.84	1.68	12	5.76	11.52	44	21.12	42.24
2	.96	1.92	14	6.72	13.44	46	22.08	44.16
2¼	1.08	2.16	16	7.68	15.36	48	23.04	46.08
2½	1.20	2.40	18	8.64	17.28	50	24.00	48.00
2¾	1.32	2.64	20	9.60	19.20	52	24.96	49.92
3	1.44	2.88	22	10.56	21.12	54	25.92	51.84
3½	1.68	3.36	24	11.52	23.04	56	26.88	53.76
4	1.92	3.84	26	12.48	24.96	60	28.80	57.60
4½	2.16	4.32	28	13.44	26.88	64	30.72	61.44
5	2.40	4.80	30	14.40	28.80	68	32.64	65.28
5½	2.64	5.28	32	15.36	30.72	72	34.56	69.12

Graton & Knight Acorn Solid Round Leather Belting

Made from strong, pliable leather, tanned by the long-time oak bark process. Long wearing, with minimum stretch.

Available in the following sizes: heavy: ⅛, 3/16, ¼, 9/32, 5/16, 11/32 and ⅜ inch; regular: ¼, 9/32, 5/16, 11/32, ⅜ and ½ inch. Prices furnished upon request.

Rhoads Tannate Rounded Leather Belting



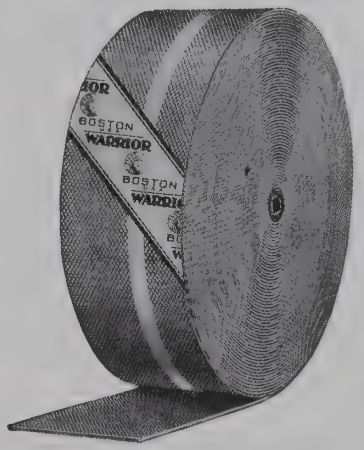
Gives proper machine speed and increased output.

Has long life. Its unusual durability means fewer machine stops, lower replacement costs and more continuous production.

Available in ⅛, 3/16, ¼ Reg., ¼ Hvy., 9/32, 5/16 and ⅜-inch sizes.

Furnished in 100-foot spools in handy dispenser boxes.

Warrior Rubber Transmission Belting



For medium duty constant load. Mildew inhibited. Used where shock or impact loads not present. Cemented edge. Carcass: black, frictioned, laminated or folded 32-oz. duck. Friction between plies, 16 to 19 lb. Strength of duck in finished belt: 300 lb. per inch per ply.

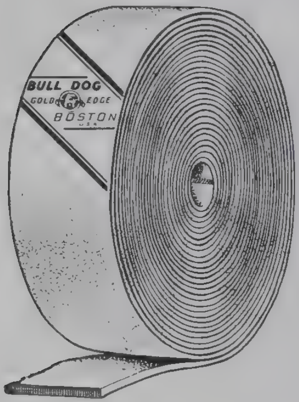
No. of Plies	3	4	5	6
Approx. Overall Gage......inches	.177	.236	.295	.354
Approx. Weight per In. per 100 Ft..............pounds	6	9	11	13

BELT REPAIRS

In conjunction with our complete stock of belting we maintain a belt repair shop in charge of real belt makers.

We are prepared to repair belts either at your plant or at our shop, day or night.

Bull Dog Gold Edge Belting



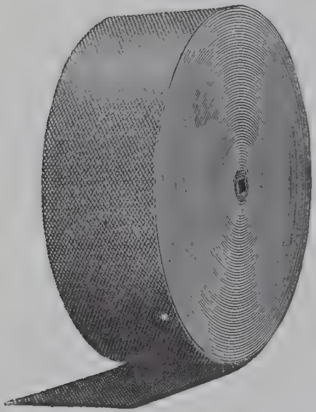
For drives in paper and board mills, stone crushing plants, cement mills, lumber industries, ore crushing and refining plants, brick plants, textile industries and planing mills.

When made endless, there are no folds, seams or splices, the structure being one continuous length, equally strong at all points. It may be run on either side.

Made in sizes 1 to 60 inches and 2 to 12 ply.

Prices upon application.

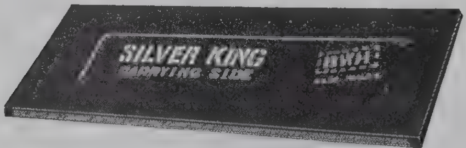
Tiger Transmission Belting



For the agricultural trade and for light industrial service.

Made of 32-ounce duck, square edge or folded edge.

Silver King Conveyor Belting



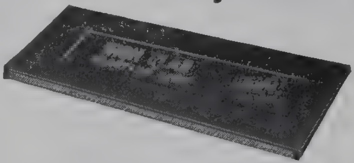
For ores of all kinds, quenched coke and for some of the harder jobs around rock crushing plants.

Made of 28, 32, 36, 42 or 48-ounce duck with a high grade of friction and skim between the plies and a tough cover compound. Carrying side usually has a ⅛ or $^3/_{16}$-inch cover, although heavier covers will be furnished if desired. Cover on pulley side is usually $^1/_{32}$-inch thick.

Recommended temperature range, 0 to 200°F.

Tensile strength of covers, 2500 to 3000 pounds. Friction between plies 16 to 19 pounds.

Iron Clad Conveyor Belting



Made of 28 or 32-ounce duck, a high quality of friction and a cover which can be recommended for soft coal, sand or general service where the materials to be carried are not too abrasive.

Tensile strength of covers 800 to 1000 pounds. Friction between plies 12 to 15 pounds. Tensile strength per inch per ply in finished belt: 28 ounce, 280 pounds; 32 ounce, 300 pounds.

. Cover thickness to be specified, and depends on service conditions.

Prices upon application.

Globe Solid Woven White Cotton Belting

For conveyer and elevator purposes. Also for piano straps, slings for raising stone in quarries, heavy straps, etc.

Firmly woven into balanced, continuous construction that eliminates excess stretch and ply separation. Smooth surface is resistant to wear, affording better pulley grip or coefficient of friction as well as distributing abrasive action over uniform surface.

Standard rolls 400 to 500 feet. Special widths and extra lengths made to order.

Width Inches	Per Foot					
	2-Ply	3-Ply	4-Ply	5-Ply	6-Ply	8-Ply
1	$.15	$.22	$.31	$.40	$.51	.....
1¼	.18	.28	.37	.48	.60	.....
1½	.20	.32	.41	.52	.70	.....
1¾	.24	.38	.48	.60	.82	.....
2	.26	.40	.51	.65	.88	$1.10
2¼	.31	.46	.60	.80	1.00	.....
2½	.33	.50	.63	.85	1.05	1.45
3	.40	.59	.75	1.00	1.20	1.60
3½	.46	.67	.88	1.20	1.40	1.95
4	.53	.75	1.00	1.35	1.50	2.10
4½	.60	.85	1.13	1.50	1.75	2.50
5	.66	.95	1.25	1.55	1.85	2.60
5½	.73	1.05	1.38	1.75	2.10	3.00
6	.80	1.10	1.50	1.85	2.20	3.10
6½	.86	1.25	1.65	2.05	2.50	3.50
7	.92	1.30	1.75	2.15	2.65	3.65
7½	1.00	1.45	1.90	2.35	2.85	4.00
8	1.05	1.50	2.00	2.40	2.90	4.15
9	1.20	1.70	2.30	2.85	3.40	4.75
10	1.30	1.85	2.50	3.05	3.65	5.15
11	1.50	2.10	2.80	3.50	4.20	5.90
12	1.60	2.20	3.00	3.70	4.40	6.20
13	1.80	2.50	3.40	4.10	4.95	6.80
14	1.85	2.60	3.50	4.35	5.15	7.30
15	2.05	2.90	3.90	4.70	5.80	8.00
16	2.10	2.95	4.00	5.00	6.00	8.40
17	2.35	3.30	4.40	5.50	6.60	9.00
18	2.40	3.35	4.50	5.70	6.80	9.50
19	2.60	3.70	4.90	6.15	7.35	10.20
20	2.65	3.75	5.00	6.30	7.50	10.60
22	3.00	4.15	5.60	7.00	8.30	11.80
23	3.15	4.40	5.90	7.35	8.80	12.60
24	3.20	4.45	6.00	7.50	9.00	12.80
25	3.50	5.00	6.60	8.10	10.00	14.00
26	3.55	5.10	6.75	8.40	10.20	14.30
27	3.80	5.40	7.10	8.90	11.00	15.00
28	3.85	5.50	7.35	9.10	11.30	15.60
30	4.00	5.60	7.50	9.60	12.00	16.50
31	4.35	6.10	7.90	10.00	12.80	17.50
32	4.40	6.20	8.10	10.40	13.00	17.80
34	4.65	6.55	8.80	11.20	14.00	19.00
36	4.75	6.70	9.00	11.80	14.50	20.00
38	5.30	7.50	9.80	12.90	15.50	22.00
40	5.40	7.60	10.20	13.60	16.20	23.00
42	5.85	8.00	11.00	14.30	17.00	24.50
44	6.10	8.80	12.00	15.30	18.00	26.50
48	6.60	9.40	12.60	16.50	19.50	29.00
50	7.35	10.40	13.70	17.40	21.00	32.00
52	7.55	11.40	14.70	18.30	22.50	34.00
54	7.85	11.80	15.80	19.00	23.50	35.00
60	9.00	13.20	17.50	21.20	26.00	40.00
66	11.00	15.75	21.00	26.00	32.00	47.00
72	12.00	17.20	22.80	28.50	35.00	52.00
84	14.00	20.00	26.60	33.50	42.00	60.00

Globe waterproof treated belting is also sold from the above price list.

Globe Kanry-Tex Belts

For use in canning plants, for carrying of fruits and vegetables.

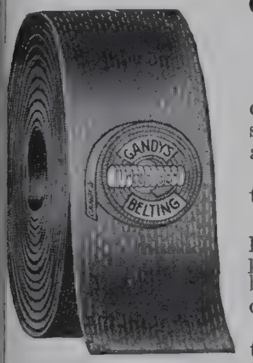
Has a special Neoprene rubber treatment impregnated in the fibers of the belt. May be washed with hot water or live steam. Is odorless and tasteless and impervious to fruit and vegetable juices and acids. Absorbs practically no water. Does not deteriorate with age.

May be had in either a white, brown or black color. The white is used for contract purposes on inspection belts. The brown shade eliminates glare and does not soil readily.

Available up to 48 inches wide and in any length up to 500 feet.

Gandy Industrial Stitched Canvas Belting

The Belt with One Green Edge



Gandy is a scientifically stitched canvas belt made from selected long staple American cotton in both 32 and 37½ ounce weight duck.

Red Gandy is an oil-resistant belt that remains permanently pliable.

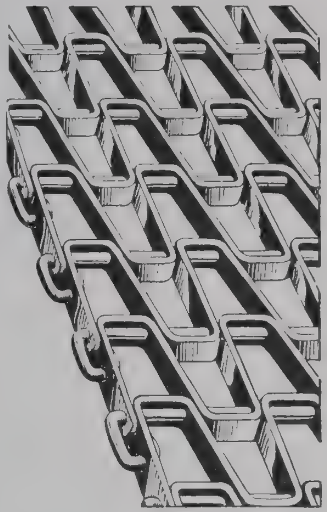
Thermo Gandy Black Belt is impregnated with a special black compound that produces a strong, dense body and completely protected carcass.

Conwax Gandy is given a wax treatment that provides a sanitary feature.

Width inches	4-Ply Per Foot	5-Ply Per Foot	6-Ply Per Foot	8-Ply Per Foot	10-Ply Per Foot
2	$.78	$.98	$1.18	$1.56	.....
2½	.98	1.22	1.46	1.96	.....
3	1.14	1.42	1.72	2.30	.....
3½	1.32	1.66	2.00	2.65	.....
4	1.48	1.86	2.20	2.95	.....
4½	1.68	2.10	2.45	3.35	.....
5	1.86	2.30	2.80	3.70	.....
5½	2.05	2.55	3.05	4.10	.....
6	2.15	2.70	3.25	4.30	.....
7	2.50	3.15	3.80	5.00	.....
8	2.90	3.60	4.30	5.80	.....
9	3.25	4.05	4.85	6.50	.....
10	3.60	4.50	5.40	7.20	$9.00
11	4.00	5.00	5.90	7.90	9.90
12	4.30	5.40	6.50	8.60	10.80
13	4.80	6.00	7.20	9.60	12.00
14	5.20	6.50	7.80	10.40	13.00
15	5.60	6.90	8.30	11.10	13.90
16	5.90	7.40	8.90	11.80	14.80
17	6.30	7.90	9.40	12.60	15.70
18	6.70	8.30	10.00	13.30	16.70
20	7.60	9.50	11.40	15.20	19.00
22	8.40	10.50	12.50	16.70	20.90
24	9.10	11.40	13.70	18.20	22.80
26	9.90	12.40	14.90	19.90	24.90
28	10.70	13.40	16.10	21.40	26.80
30	11.50	14.30	17.20	23.00	28.70
32	12.20	15.30	18.40	24.50	30.60
34	13.00	16.30	19.50	26.00	32.50
36	13.80	17.20	20.70	27.50	34.40
38	14.50	18.20	21.80	29.10	36.30
40	15.30	19.10	22.90	30.60	38.30
42	16.10	20.10	24.10	32.10	40.20
44	16.80	21.00	25.20	33.70	42.10
46	17.60	22.00	26.40	35.20	44.00
48	18.40	23.00	27.50	36.70	45.90
50	21.20	26.50	31.80	42.40	52.90
52	22.00	27.50	33.00	44.00	55.10
54	22.90	28.60	34.30	45.70	57.20

Widths not listed will be charged for at next higher width list price. Factory made endless belts, all sizes and price figured at 10 feet longer than actual belt length.

La Porte Flexible Steel Conveyor Belts



Used by canners, packers, bakeries, freezing and dehydrating firms, industrial and automotive plants for every conveying purpose.

Made of cold rolled galvanized ⅜ inch x .047 steel with a No. 12 cross wire.

Available in any length and practically any width.

Standard widths: 12, 18, 24, 30, 36 and 48 inches. Other widths made to order.

Furnished in 1x1, ½x1 and ½x½-inch mesh.

Weight per square foot: 1x1-inch mesh, 1⅞ pounds; ½x1-inch mesh, 2⅜ pounds; and ½x½-inch mesh, 2¾ pounds.

Prices upon application.

Alexander Liquid Belt Lube

Spray Type

Alexander
LIQUID BELT LUBE

Revitalizes leather, rubber and fabric belts, leather boots, harness and sports equipment.

Gives positive gripping surface which stops belt slippage. Penetrates quickly.

Press of finger releases fine, uniform spray. No waste, rags or brushes.

Must be kept away from stove, radiator, or room where temperature exceeds 125°F.

Standard case, 12 cans.

Per Can, Net Weight, 12 Ounces.................... **$1.50**

Alexander Waterproof Cements

WATERPR
CEMENT
BROTHE
INC.
PHILADELPHIA

A cement that is applied in liquid form and when set is insoluable in water.

Binds fibers of leather together with positive tenacity.

Inflammable. Do not expose to open flame.

One quart of cement will cover 9 square feet of leather belt.

Packed in airtight cans, ready for use.

Prices upon application.

We are prepared to re-work
OLD LEATHER BELTS *and make*
BELTS ENDLESS *at our plant*
or on the job.

Pulmor Belt Dressing

TRADE MARK
PULMOR
PULMOR
REG. U. S. PAT. OFF.

Removes oil and grease from leather belts.

Preserves the belt, stops slipping, increases horsepower and overcomes troubles caused by belts stretching and shrinking in wet and dry weather.

Does not contain rosin, or any other ingredients injurious to leather, rubber or canvas belting.

Pulmor dressing is furnished in 2-pound bars and liquid dressing is furnished in 1-quart cans.

Regular Belt Cement

An elastic cement of strength and tenacity.

Sets quickly and is used for making belts endless, to do repairing, close laps, etc.

Packed in 2-pound cans.

Waterproof Belt Cement

This cement acts slowly, and care must be used in making joints. It is useful for repair work in general.

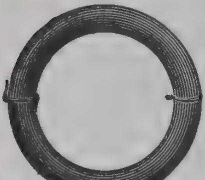
Packed in 1-quart cans.

Wire Belt Lacing

Perfection and O.K. Brands

Made of a special mixture of metals put through a special annealing process.

Exceedingly tough and pliable; slow to crystallize or break in service. Easily applied.

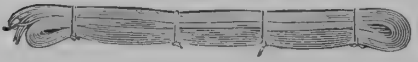


Gage No.	Single Belt Width Inches
00	Up to 1½
0	1½ to 3
1	3 to 6
2	*6 to 12
3	†Above 8

*Also for double belts up to 8 inches wide.

†For double belts only.

Cut Lacing

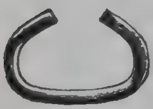


In 100-foot bunches.

Width ...in.	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1
Per 100 Ft...									

Armstrong-Bray Suregrip Round Belt Hooks

For Round Belts

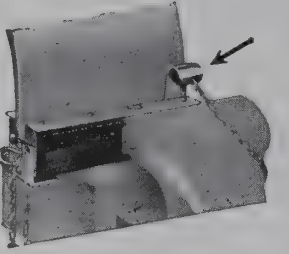

No. 15B

Especially adapted for sewing machine belts. Packed 500 in a box.

No. 17B, for Belts Smaller than ¼-Inch	per 500	$1.70
No. 16B, for Belts ¼ to 5/16-Inch	per 500	1.95
No. 15B, for Belts 5/16 to ⅜-Inch	per 500	2.20
No. 14B, for Belts Over ⅜-Inch	per 500	2.55

Clipper Belt Lacers

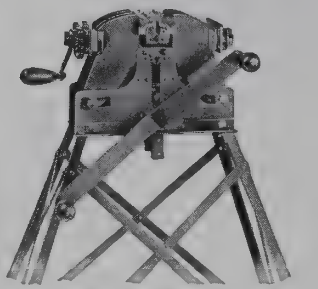
No. 0 Vice Lacers



For use in any ordinary vise For belts 4 to 6 inches wide. Special pressure plate as indicated by arrow makes it possible to embed the hooks flush with the surface of the belt, also to clinch the points.

Size.......inches	4	6
Each............	$5.00	6.00
Weight...pounds	4	6

No. 9 Portable Lacers

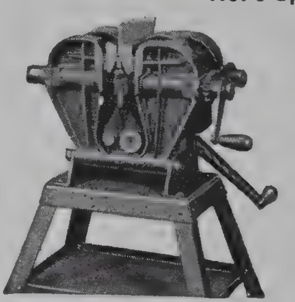


Easily carried to the belt. Laces one end of any belt up to 6 inches wide and not over ⅜ inch thick in one operation, forming a perfect line of loops. For wider belts repeat. Perfect loops permit the use of larger connecting pins, therefore longer service.

Each hook makes a perfect contact with connecting pin. This distributes pull equally on every hook in joint.

No. 9, Complete with Stand; Wt., 56 Lb.	each	$59.00
Special Adapter for No. 1 Hooks, Laces Thin Belts from ⅛ to 5/32-Inch Thick	each	6.50

No. 8 Speed Lacers



Will lace one end of any belt up to 8 inches wide in one operation. For wider belts repeat operation. A three-quarter turn of double end crank will embed hooks flush with the surface of any belt and clinch points. Clinch keeps hooks from working up and becoming worn or fatigued by pounding on the pulleys.

Suitable for all belts up to 13/32 inch thick.

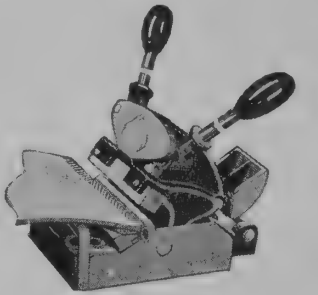
Also available with 12-inch jaws for lacing belts of this width in one operation.

No. 8, Complete with Stand; Wt., 160 Lb.	each	$205.00
No. 8, with 12-Inch Jaw; Wt., 172 Lb.	each	295.00

No. 6 Speed Lacers

Built on the same principle as the No. 8 but is smaller. Will lace one end of any belt up to 6 inches wide in one operation. Weight with stand, 104 pounds.

No. 6, Complete with Stand.........each $165.00


No. 3

No. 3

For lacing one end of any belt not exceeding 6 inches wide and ⅜ inch thick in one operation. For wider belts repeat operation.

Weight, 25 pounds.

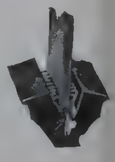
No. 3...........each $40.00

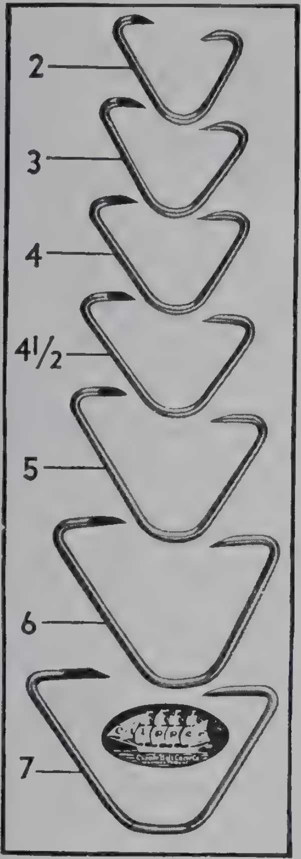
No. 1

Nos. 1 and 101

Use only No. 1 belt hooks. For belts not more than 2 inches wide and not exceeding 5/32 inch thick.

	Portable Type	Vise Type
No....	1	101
Each..	$14.25	4.50
Weight pounds	4	1

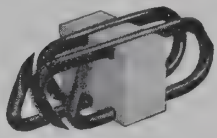

No. 101



Clipper Belt Lacing

Clipper Belt Lacing makes a smooth joint, flexible as the belt itself. The hooks are made of a highly specialized steel wire. It combines great tensile strength and wearing qualities. Capable of standing strain of 400 pounds per inch.

Reinforcing strip prevents card from collapsing and permits cutting of card with a knife without waste.



Double-Staggered Grip Showing Even Distribution of Hook Point Strain on the Belt

No. 1 box contains 20 cards of 50 hooks each and 12 Lubrihide pins. Nos. 2 to 6 are packed twelve, 12-inch cards (144″) per box with a sufficient quantity of Lubrihide pins. Packed 25 boxes in standard carton.

No.	Description	Ship. Wt. Lb. Std. Ctn.	Regular per Box
1	For Use in Nos. 1 and 101 Lacers..........	17	$1.70
2	For Thin Belts 3/16″ Thick over Small Pulley	30	1.95
3	For Thin Belts 3/16″ Thick over Med. Pulley	32	2.00
4	For Belts Not over ¼ Inch Thick..........	34	2.00
4½	For Heavy Duty Belts, ¼ Inch Thick......	37	2.20
5	For Belts Not over 5/16 Inch Thick..........	45	2.40
6	For Belts Not over ⅜ Inch Thick..........	53	3.00
7	For Belts Not over 13/32 Inch Thick.........	57	3.30

Clipper Connecting Pins

Clipper
LUBRIHIDE PINS

Wear 2 to 4 times longer; built-in lubrication.

Bamboo pins are waterproof and long wearing; for use under wet conditions.

Packed in Standard packages of 24 pins, 12 inches long. Standard packages range in weight from ¾ to 4½ ounces.

Size No.	Diam. In.	For	Lubrihide per Pkg.	Rawhide per Pkg.	Bamboo per Pkg.
13	3/32	Nos. 1, 2, and 3 Hooks......	$1.85	$1.75	$1.75
12	7/64	Nos. 4 and 4½ Hooks.......	1.85	1.75	1.75
11	⅛	No. 5 Hooks...............	1.85	1.75	1.75
10	9/64	No. 5 Hooks...............	2.35	2.25	2.25
9	5/32	No. 6 Hooks...............	2.65	2.55	2.55
8	11/64	Nos. 6 and 7 Hooks.........	3.00	2.90	2.90
7	3/16	For Special Purposes........	....	3.50	....
5	7/32	For Special Purposes........	....	5.20	....
Assorted Sizes, Nos. 8 to 13.........			2.15	2.05	2.05

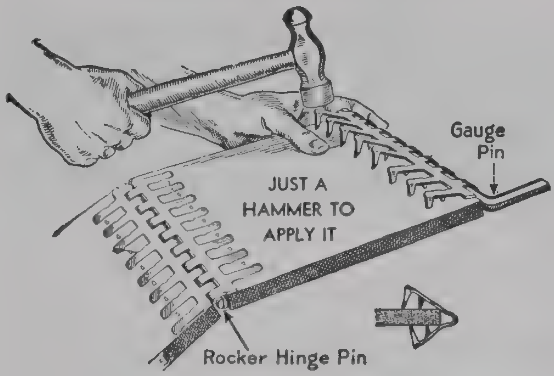
Clipper Belt Cutters

Open End Model

For cutting belting from roll or squaring belt ends, preparatory to lacing them. Strongly and sturdily built.

Sizes........inches	6	10
Each..............	$17.50	$24.50
Extra Blades..each	2.10	3.75
Weight.....pounds	11	16

Alligator Steel Belt Lacing



For joining conveyor and transmission belting of all the generally used kinds—solid woven, stitched canvas, rubber, balata, composition and leather. For general service and heavy duty. Makes a smooth, flexible joint. Furnished in 12 sizes for joining belts up through ⅝-inch thickness and up to 96 inches in width. No special tools required. Just a hammer to apply it. Available in standard boxes and in long lengths for wide conveyor belts.

Box No.	Per Box	Contents: Lacing No.	Contents: No. Sets	Contents: For Size Belts, In.	Thickness of Belt Inches	Wt. Lb.
00	$1.40	00	6	6	Up to 1/16	0.2
1	1.60	1	6	6	1/16 to 3/32	0.4
5	1.80	5	6	6	3/32 to ⅛	0.6
15	1.90	15	4	12	⅛ to 5/32	1.0
20	2.00	20	4	12	5/32 to 3/16	1.3
25D	2.50	25	4	12	3/16 to 7/32	1.5
25F	2.50	25	6	8	3/16 to 7/32	1.4
25G	5.00	25	8	12	3/16 to 7/32	2.7
27K	2.65	27	4	12	¼ to 9/32	1.8
27L	5.30	27	8	12	¼ to 9/32	3.3
35M	2.30	35	4	8	9/32 to 5/16	1.8
35N	3.40	35	4	12	9/32 to 5/16	2.7
45U	4.50	45	4	12	5/16 to ⅜	3.4
55W	5.20	55	4	12	⅜ to 7/16	4.9
65X	6.00	65	4	12	7/16 to ½	6.0
75	8.80	75	4	12	½ to ⅝	10.0

Long length prices furnished upon request.

Corrugated pins supplied with Nos. 00, 1 and 5 and with long lengths which are to be used to join conveyor belts.

Sectional steel rocker hinge pins supplied in standard boxes Nos. 15 to 75 inclusive and recommended for transmission service. Rawhide hinge pins supplied with Nos. 00 to 45U inclusive only upon request.

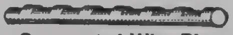
Economy Packages

Each package contains one 12-inch set of lacing complete with gage and hinge pins.

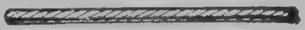
Packed in cartons, 10 packages of single size to carton.

Size No..........	15E	20E	25E	27E	35E
Per Carton......	$4.75	5.00	6.25	6.65	8.50

Extra Hinge Pins—Cut to Suit Requirements



Corrugated Wire Pin For Nos. 00 to 75 Inclusive

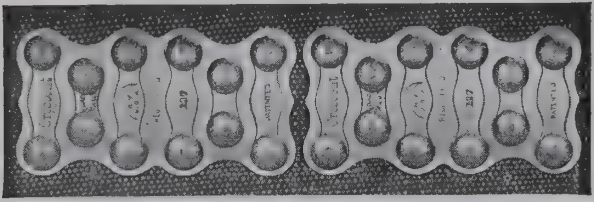


Twisted Rawhide For Nos. 00 to 45 Inclusive

Rocker Hinge Pin For Nos. 15 to 75 Inclusive

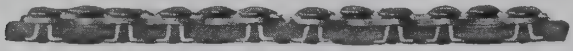
Description	Per Dozen	For Lacing No.	Lgth. Pins In.
Corrugated Wire or Rawhide Pins......	$.40	00	6
Corrugated Wire or Rawhide Pins......	.40	1	6
Corrugated Wire or Rawhide Pins......	.40	5	6
Rocker, Corrugated or Rawhide Pins...	.90	15	12
Rocker, Corrugated or Rawhide Pins...	.90	20	12
Rocker, Corrugated or Rawhide Pins...	.90	25	12
Rocker, Corrugated or Rawhide Pins...	1.00	27	12
Rocker, Corrugated or Rawhide Pins...	1.00	35	12
Rocker, Corrugated or Rawhide Pins...	1.20	45	12
Rocker or Corrugated Pins Only........	1.40	55-65	12
Rocker or Corrugated Pins Only........	1.70	75	12

Crescent Belt Fasteners



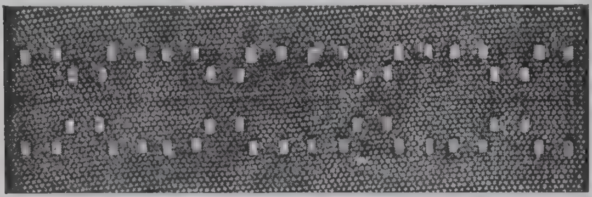
Outside of Crescent Joint

Crescent Plates are curved to fit the diameter of pulley for which they are intended. Patent roller edge prevents breaking back of joint. Nothing to pry up, fly off or work loose.



Cross Section

Crescent Rivets find their way through belt without cutting or severing lengthwise fiber. The clinch sinks below the surface of the belt. No wear nor noise. Crescent Belt Fasteners will outlast the belt.



Pulley Side of Crescent Joint

The strain is evenly distributed across the entire width of belt. Crescent joining is as smooth as endless on pulley side. Belt ends are butted tightly together. No gap to catch on shifter or guide.

Service Chart

Crescent Short-Grip Plates for Light Work

Smaller Pulley 3-Inch Diameter or Larger

No:	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
25	$4.32	¾, 1	2	1¾
45	8.64	1¼, 1½, 3	4	3¼
65	12.96	2, 4	6	4½
85	17.28	2½	8	5½
805	17.28	3	8	6½

Crescent Medium-Grip Plates for General Work

Smaller Pulley 6-Inch Diameter or Larger

No:	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
67	$12.96	1½, 3	6	6
607	12.96	2, 4	6	7½
87	17.28	2½, 5	8	9½
107	21.60	3, 6	10	11¼
127	25.92	3½, 7	12	15¼
147	30.24	4, 8	14	16½

Crescent Special-Grip Plates for General Work

Smaller Pulley 9-Inch Diameter or Larger

No:	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
63	$17.28	2	6	10½
83	21.60	2½	8	12½
103	25.92	3	10	16½
123	30.24	3½	12	20½

Crescent Long-Grip Plates for Heavy Work

Smaller Pulley 12-Inch Diameter or Larger

No:	Per Gross	For Belt Widths Inches	Crescent Rivets Required	Weight Pounds per Gross
109	$25.92	2½	10	21½
149	34.56	3	14	24½
1409	38.88	3½	14	30½
189	43.20	4	18	34½

For wider belts use 2 or more Crescent Plates.

Crescent Large Shank Rivets for Attaching Above Crescent Plates

Use a size 3/16-inch longer than thickness of belt.

No.	Per Gross	Lgth. In.	Wt., Oz. per Gross	No.	Per Gross	Lgth. In.	Wt. Lb. per Gross
L5	$1.00	5/16	10	L10	$1.50	⅝	1
L6	1.10	⅜	11	L11	1.60	11/16	1 1/16
L7	1.20	7/16	12	L12	1.70	¾	1⅛
L8	1.30	½	14	L13	1.80	13/16	1⅜
L9	1.40	9/16	15	L14	1.90	⅞	1¼

Crescent Belt Fasteners

Crescent High-Speed Plates for Light Work

Smaller Pulley 2-Inch Diameter or Larger

No	20	40	44	60
Per Gross	$4.32	8.64	8.64	12.96
For Belt Widths. inches	¾, 1	1	1¼, 1½, 2½, 3	2, 4
Crescent Rivets Required	2	4	4	6
Weight per Gross pounds	1¼	1½	2¼	3½

For wider belts use 2 or more Crescent plates.

Crescent Small Shank Rivets for Attaching Crescent High-Speed Plates

Use a size 3/16 inch longer than thickness of belt.

No	S5	S6	S7	S8	S9	S10
Per Gross	$.60	.70	.80	.90	1.00	1.10
Length inches	5/16	⅜	7/16	½	9/16	⅝
Weight Per Gross oz.	6	6½	7	8	9	10

Crescent Jumbo Plates for Extra Heavy Work

Smaller Pulley 24-Inch Diameter or Larger

No	1011	1611	2211
Per Gross	$34.56	43.20	51.84
For Belt Widths inches	2	3	4
Crescent Rivets Required	10	16	22
Weight per Gross pounds	22½	37½	51½

For wider belts use two or more Crescent plates.

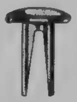
For conveyor or elevator work where belt runs at a comparatively slow speed, Crescent Jumbo plates can be used where smaller pulley is 18 inches diameter or larger.

Crescent Jumbo Rivets for Attaching Crescent Jumbo Plates

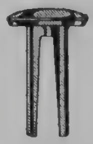
Use a size 5/16 inch longer than thickness of belt.

No.	Per Gross	Length Inches	Wt. per Gross Lb.	No.	Per Gross	Length Inches	Wt. per Gross Lb.
J10	$1.75	⅝	1 9/16	J14	$2.35	⅞	1⅞
J11	1.90	11/16	1 11/16	J15	2.50	15/16	1 15/16
J12	2.05	¾	1¾	J16	2.65	1	2
J13	2.20	13/16	1 13/16	J18	2.80	1⅛	2¼

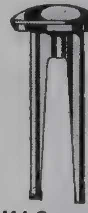
Crescent Rivets



S6 Crescent Small Shank Rivet



L9 Crescent Large Shank Rivet



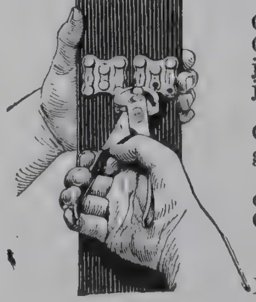
J14 Crescent Jumbo Rivet

Crescent rivets are of special construction, size and proportion especially adapted for this work.

Made in 3 styles as shown and in various lengths as indicated in the different tables.

Packed 1 gross of 1 size to a box.

No. 79 Crescent Rivet Extractors



To shorten or disconnect with a Crescent rivet extractor remove the Crescent rivets from one side of the joint only. Cut out slack and rejoin, using a few new Crescent rivets.

The Crescent plates and half the Crescent rivets are undisturbed and good for the life of the belt.

Crescent rivet extractor is a specially designed tool for removing Crescent rivets quickly and easily.

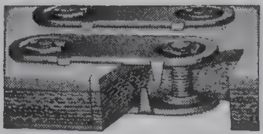
Length, 8 inches.

Weight, 1 pound.

No. 79 . . . . each **$2.25**

Flexco H D Steel Belt Fasteners

For Conveyor and Elevator Belting



Compression principle is the most successful method of joining belting mechanically. For tight butt joints in heavy duty conveyor and bucket belts the Flexco H D Fastener gives satisfactory service.

Plates are cupped to receive the nuts and bolt heads. Finished joint is practically flush with the surface of the belt and operates satisfactorily through trippers and takeup pulleys.

Strain is distributed over the whole space covered by the plates. Completed joint is tight and will not permit loss of material through joint. It troughs naturally and conforms readily to crowned pulleys.

Standard Boxes

Each box contains 10 sets of fasteners complete with plates, bolts, nuts and clips.

No.	1	1¼	1½	2	2½	3
Per Box	$6.00	6.50	7.00	8.00	12.00	13.00
For Belt Thick. . in.	¼-7/16	⅜-½	7/16-11/16	⅝-13/16	¾-1	15/16 Up
Min. Pulley Diam. in.	12	14	18	30	42	48
Weight . . . lb.	1	1.8	2.3	3	6	6.6

Extra Parts

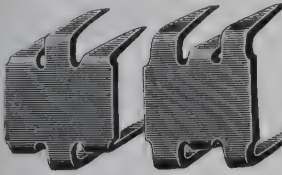
Per 100

No.	1	1¼	1½	2	2½	3
Upper Plates	$11.00	$11.50	$12.00	$18.00	$24.00	$30.00
*Lower Plates	11.00	11.50	12.00	18.00	24.00	30.00
Clips	2.00	2.25	2.50	3.00	5.00	5.00
Bolts and Nuts	20.00	25.00	25.00	25.00	40.00	40.00
Bolts	8.00	10.00	10.00	10.00	16.00	16.00
Nuts	12.00	15.00	15.00	15.00	24.00	24.00

*Including clips.

Stag Steel Belt Hooks

A zig-zag hook with a solid back.



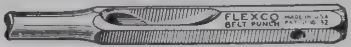
Made from a fine quality of open hearth drawing steel in 3-point lengths only, enabling the consumer to use only as many as the actual strain on the belt requires.

Zig-zag principle and a solid back insure a strong and elastic joint which runs over the smallest pulley without strain on the belt where the teeth enter. The teeth, being narrow and sharp, are easily driven without injury to the fibers of the belt, making them adaptable to leather, rubber, cotton or woven belts.

No.	Per 100	Width Belt Inches	Min. Lacing Inches	Kind of Belt	No. in Box
00	$.80	⅜ to 3	75	Light Leather, Rubber or Cotton, 1/16 to ⅛-In. Thick	200
0	1.00	½ to 3	100	Light Leather, Rubber or Cotton, ⅛ to 3/16-In. Thick	200
1	1.20	1 to 5	75	Single Leather, 3-Ply Rubber or Cotton	100
2	2.00	1 to 8	100	Heavy Single or Light Double Leather, 4-Ply Rubber or Cotton	100
2½	3.00	1 to 8	100	Double Leather, 4 to 6-Ply Rubber or Cotton	100
3	3.40	1 to 12	100	Double Leather, 4 to 6-Ply Rubber or Cotton	100
4	5.00	1 and Up	125	Heavy Double Leather, 6 to 8-Ply Rubber or Cotton	100
5	8.00	1½ and Up	150	Extra Heavy Double Leather, 6 to 8-Ply Rubber or Cotton	100
6	11.00	1½ and Up	150	Extra Heavy Double Leather, Rubber or Cotton, ½ to 11/16-Inch Thick	100
7	18.00	2 and Up	200	Extra Heavy Conveyor, ⅝ to 13/16-Inch Thick	100

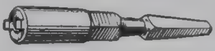
Flexco Tools for H D Belt Fasteners

Straight Side Belt Punches



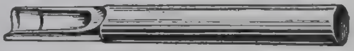
Size No.	1	2	3
Each	$4.00	5.00	7.00
For Fastener No.	1,RP1	1¼,1½,2,RP2	2½,3

Wrenches



Size No.	1	2	3
Each	$2.25	2.25	2.25
For Fastener No.	1,RP1	1¼,1½,2,RP2	2½,3

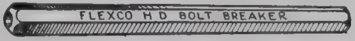
Boring Bits



Bores a clean hole quickly.

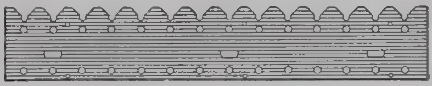
Size No.	1	2	3
Each	$2.25	2.25	2.25
For Fastener No.	1,RPI	1¼,1½,2,RP2	2½,3

Bolt Breakers


FLEXCO H D BOLT BREAKER

Size No.	1	2	3
Each	$1.25	1.50	2.00
For Fastener No.	1	1¼,1½,2	2½,3

Templets



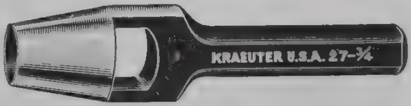
For easy application. Makes a tight butt joint.

Furnished in 12-inch to 96-inch lengths.

12-Inch Length . . . . . each $4.00

Longer templets at 20 cents per added inch or $2.00 per added foot. Average weight 24-inch templet, 2.5 pounds.

No. 27 Kraeuter Arch or Round Punches

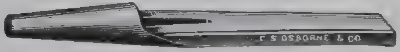


Forged from high grade steel; for cutting washers and gaskets from leather, rubber, cloth, etc.

Size In.	Each	Lgth. In.	Wt. Lb. per Doz.	Size In.	Each	Lgth. In.	Wt. Lb. per Doz.
¼	$1.35	4⅞	2	13/16	$2.50	6¼	11¼
5/16	1.35	4⅞	2	⅞	2.50	6¼	11¼
⅜	1.40	4⅞	2½	15/16	2.75	6¼	10¾
7/16	1.60	4¾	3	1	2.75	6¼	10¾
½	1.60	4¾	3	1 1/16	3.60	6⅞	14½
9/16	1.80	5¼	4½	1⅛	3.60	6⅞	14½
⅝	1.80	5¼	4½	1 3/16	3.75	7	14½
11/16	2.30	5½	6¾	1¼	3.75	7	14½
¾	2.30	5½	6¾	...	....	...	....

Prices upon request for sizes up to 4 inches.

No. 147 Osborne Round Drive Belt Punches

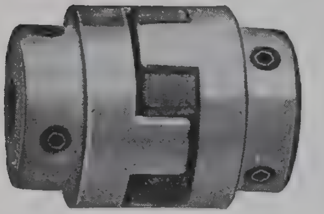


Forged from the best grade of tool steel, carefully hardened and tempered, and polished complete. Hole tapers back from the cutting edge so that the punchings clear freely and require only a light blow with a mallet to cut with ease.

Packed 12 to a box.

No.	Per Dozen	Diam. Cut Inches	No.	Per Dozen	Diam. Cut Inches
0	$16.80	5/64	9	$16.80	9/32
1	16.80	7/64	10	16.80	5/16
2	16.80	⅛	11	16.80	23/64
3	16.80	9/64	12	16.80	13/32
4	16.80	5/32	13	19.80	7/16
5	16.80	11/64	14	19.80	15/32
6	16.80	3/16	15	21.00	33/64
7	16.80	7/32	16	21.00	9/16
8	16.80	¼	..	.....	...

Lovejoy Flexible Couplings



Dampens and absorbs shock, vibration, starting torque, and intermittent overloads. Protects both motor and driven machinery. Makes shaft alignment easy. Needs no lubrication at any time.

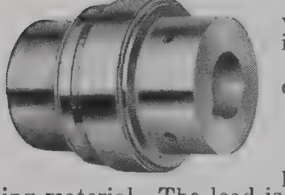
Transmits the load by compression of resilient wear resisting material. The load is so distributed that the specific pressure is kept far below the safe maximum.

The spiders or load cushions are made of material suited to the load conditions; either rubber or leather material as needed. These spiders or load cushions take up all the wear; they are always in sight for inspection and easily replaced.

Tapered or splined bores will be charged extra. Hub diameter varies with size of bore.

Size No.	Each	Extra Spider Each	One Body Only Each	Max. Bore In.	Max. Hp. At 1750 RPM.	Max. Hp. At 100 RPM.	O.D. In.	Lgth. Over-all In.	Dist. Bet. Shafts In.	Gap Bet. Jaw & Body In.	Wt. Lb.
A-050	$.75	$.20	$.30	1/2	1–6	...	1 3/32	1 5/8	1/2	1/16	1/4
A-050X	.85	.20	.34	9/16	1–6	...	1 3/32	2 3/8	1/2	1/16	3/8
AU-050	1.25	.20	.30	1/2	1–6	...	1 3/32	2 3/8	1/2	1/16	1/2
AU-050X	1.35	.20	.34	1/2	1–6	...	1 3/32	3 3/8	1/2	1/16	5/8
L-070	1.30	.36	.50	3/4	1/3	...	1 3/8	2	1/2	1/16	1/4
L-090	2.40	.96	.80	3/4	1 1/2	...	2 1/8	2 11/32	1/2	3/32	1/2
L-095	4.50	.96	1.80	1	2 1/2	...	2 1/8	2 1/2	1/2	3/32	1 1/4
L-099	5.20	1.80	1.70	1 1/16	5	...	2 9/16	2 13/16	11/16	3/32	2 1/4
L-100	7.50	1.80	2.85	1 1/2	7.5	...	2 9/16	3 1/2	3/4	1/8	3 1/4
L-110	10.00	2.40	3.80	1 1/2	12	...	3 5/16	4 1/4	7/8	1/8	7 1/2
L-150	13.30	3.60	4.85	1 5/8	20	1.5	3 3/4	4 1/2	1	1/8	8
L-160	15.00	3.60	5.70	1 3/4	25	2.0	3 3/4	4 1/2	1	1/8	8
L-190	20.00	6.00	7.00	2	30	2.5	4 1/2	5 1/4	1	1/8	16
L-225	28.00	7.20	10.40	2 1/4	40	4.0	5	6	1	1/8	23

Type C Lovejoy Flexible Couplings



Dampens and absorbs shock, vibration, starting torque, and intermittent overloads.

Protects both motor and driven machinery.

Makes shaft alignment easy. Needs no lubrication.

Transmits the load by compression of resilient wear resisting material. The load is so distributed that the specific pressure is kept far below the safe maximum.

Spiders or load cushions are made of material suited to the load conditions; either rubber or leather material as needed. These spiders or load cushions take up all wear; always in sight for inspection and easily replaced.

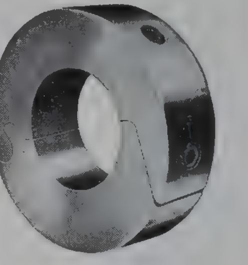
Size No.	Each	Max. Bore, In. Small End	Max. Bore, In. Large End	Max. Hp. at 100 RPM.	O.D. In.	Over-all Lgth. In.	Dist. btwn. Flanges In.	Dist. btwn. Shafts In.	Cushions per Cplg.	Approx. Wt. Lb.
C-152	$20.40	...	1 3/4	2.58	4 1/4	4 5/8	1 1/8	1/8	6	10
C-191	27.10	...	2 1/8	4.43	4 15/16	5 3/8	1 3/8	1/8	6	20
C-226	33.00	...	2 5/8	6.62	5 9/16	6	1 1/2	1/8	6	33
C-276	44.00	...	3 1/8	11.5	6 9/16	7 1/4	1 5/8	1/8	6	46
C-280	56.00	3 1/4	3 5/8	16.7	8	7 3/4	1 5/8	1/8	6	66
C-285	68.00	3 1/2	4 1/8	22.0	9	8 1/8	1 5/8	1/8	6	72
C-295	86.00	4	4 5/8	29.6	9 9/16	8 1/4	1 7/8	1/8	6	90
C-2955	98.00	4	4 5/8	30.5	9 9/16	8 1/4	1 7/8	1/8	10	100
C-300	130.00	4 3/8	5 1/8	45.2	10 11/16	8 5/8	2 1/8	1/8	10	130
C-350	150.00	4 5/8	5 1/2	90.8	12 11/16	9 3/8	2 1/8	1/8	10	200
C-400	200.00	5 3/8	6 1/4	113.0	13 7/8	11 5/8	2 5/8	1/8	10	265
C-450	240.00	5 7/8	6 5/8	156.0	14 7/8	12 5/8	2 5/8	1/8	10	330

Hub diameter and length vary with size of bore. Hub diameter is at least double the bore. Length of standard couplings is the sum of two bores plus distance between flanges plus 1/2 inch or more.

Tapered or splined bores will be charged extra. Price of coupling includes key-seating. Couplings have individual load cushions.

American Solid and Split Shaft Collars

Solid



Split

Solid collars up to 3-inch sizes are turned from solid steel bar stock. Larger sizes made from high grade semi-steel castings.

Split collars also made of high grade semi-steel castings.

Solid collars 1/4 inch to 11/16 inch inclusive have slotted-head screws; those 3/4 inch and larger have hollow-head screws.

Split collars 3 inches and smaller have one hollow-head set-screw; larger sizes have two.

Shaft Size Inches	Solid Collar Each	Solid Collar Width Inches	Solid Collar O.D. Inches	Solid Collar Wt. Lb.	Split Collar Each	Split Collar Width Inches	Split Collar O.D. Inches	Split Collar Wt. Lb.
1/4	$.35	9/32	1/2	.02	....	...	...	....
5/16	.35	11/32	5/8	.03	....	...	...	....
3/8	.35	3/8	3/4	.04	....	...	...	....
7/16	.35	7/16	7/8	.06	....	...	...	....
1/2	.40	7/16	1	.07	....	...	...	....
9/16	.45	7/16	1	.07	....	...	...	....
5/8	.50	1/2	1 1/8	.10	....	...	...	....
11/16	.55	9/16	1 3/8	.18	....	...	...	....
3/4	.55	9/16	1 3/8	.16	....	...	...	....
13/16	.60	9/16	1 1/2	.20	....	...	...	....
7/8	.65	9/16	1 1/2	.18	....	...	...	....
15/16	.70	9/16	1 5/8	.22	....	...	...	....
1	.75	5/8	1 5/8	.23	$1.95	11/16	2 3/8	.65
1 1/16	.95	5/8	1 3/4	.30	....	...	...	....
1 1/8	1.00	5/8	1 3/4	.26	2.25	7/8	2 3/4	1.12
1 3/16	1.10	11/16	2	.40	2.40	7/8	2 3/4	1.10
1 1/4	1.15	11/16	2	.37	2.55	7/8	2 3/4	1.07
1 5/16	1.20	11/16	2 1/8	.43	2.70	7/8	2 3/4	1.04
1 3/8	1.25	3/4	2 1/8	.44	....	...	...	....
1 7/16	1.30	3/4	2 1/4	.50	3.00	1	3	1.42
1 1/2	1.35	3/4	2 1/4	.48	3.15	1	3	1.37
1 9/16	1.65	13/16	2 1/2	.69	....	...	...	....
1 5/8	1.70	13/16	2 1/2	.67	....	...	...	....
1 11/16	1.75	13/16	2 1/2	.65	3.60	1 1/4	3 1/4	1.98
1 3/4	2.15	7/8	2 3/4	.90	3.75	1 1/4	3 1/4	1.92
1 7/8	2.25	7/8	2 3/4	.80	....	...	...	....
1 15/16	2.30	7/8	3	1.05	4.20	1 1/4	3 3/4	2.63
2	2.35	7/8	3	1.00	4.35	1 1/4	3 3/4	2.57
2 3/16	2.60	15/16	3 1/4	1.23	4.80	1 1/4	4	2.87
2 1/4	2.65	15/16	3 1/4	1.18	....	...	...	....
2 7/16	3.20	1	3 1/2	1.40	5.40	1 1/4	4 1/2	3.65
2 1/2	3.30	1	3 1/2	1.34	....	...	...	....
2 11/16	4.00	1 1/8	4	2.20	6.30	1 1/4	4 3/4	3.91
2 15/16	4.85	1 1/8	4 1/4	2.39	7.20	1 1/4	5	4.18
3 7/16	....	...	...	....	9.00	1 5/8	5 7/8	7.63
3 15/16	....	...	...	....	10.80	1 5/8	6 1/2	8 85

Cold Finished Round Steel Bars and Shafting

All sizes 2 15/16 inches and larger are turned and polished.

Diam. In.	Net Extras for Size per 100 Lb.	Wt. Lb. per Ft.	Diam. In.	Net Extras for Size per 100 Lb.	Wt. Lb. per Ft.	Diam. In.	Net Extras for Size per 100 Lb.	Wt. Lb. per Ft.
1/8	$7.25	.042	1 15/16	$.70	10.02	4 1/8	$1.40	45.44
5/32	7.25	.065	2	.70	10.68	4 3/16	1.40	46.73
3/16	3.45	.094	2 1/16	.70	11.36	4 1/4	1.40	48.23
7/32	3.45	.128	2 1/8	.70	12.06	4 5/16	1.40	49.66
1/4	2.70	.167	2 3/16	.70	12.78	4 3/8	1.40	51.11
5/16	2.40	.261	2 1/4	.80	13.52	4 7/16	1.55	52.58
11/32	2.40	.316	2 5/16	.80	14.28	4 1/2	1.55	54.08
3/8	2.20	.376	2 3/8	.80	15.06	4 9/16	1.55	55.59
7/16	2.00	.511	2 7/16	.80	15.87	4 5/8	1.55	57.12
15/32	2.00	.587	2 1/2	.80	16.69	4 11/16	1.55	58.68
1/2	1.90	.668	2 9/16	.80	17.53	4 3/4	1.55	60.25
9/16	1.80	.845	2 5/8	.80	18.40	4 7/8	1.55	63.46
19/32	1.80	.941	2 11/16	.80	19.29	4 15/16	1.65	65.10
5/8	1.55	1.04	2 3/4	.80	20.20	5	1.65	66.75
11/16	1.30	1.26	2 13/16	.80	21.12	5 1/16	1.65	68.44
3/4	1.30	1.50	2 7/8	.80	22.07	5 1/8	1.65	70.14
13/16	1.20	1.76	2 15/16	.95	23.04	5 3/16	1.65	71.86
27/32	1.20	1.90	3	.95	24.03	5 1/4	1.65	73.60
7/8	1.20	2.04	3 1/16	.95	25.05	5 5/16	1.65	75.36
15/16	1.00	2.35	3 1/8	.95	26.08	5 3/8	1.65	77.15
1	1.00	2.67	3 3/16	1.15	27.13	5 7/16	2.15	78.95
1 1/16	1.00	3.01	3 1/4	1.15	28.21	5 1/2	2.15	80.78
1 1/8	1.00	3.38	3 5/16	1.15	29.30	5 5/8	2.15	84.49
1 3/16	1.00	3.77	3 3/8	1.15	30.42	5 3/4	2.15	88.29
1 1/4	1.00	4.17	3 7/16	1.15	31.55	5 7/8	2.15	92.17
1 5/16	1.00	4.60	3 1/2	1.15	32.71	5 15/16	2.60	94.14
1 3/8	1.00	5.05	3 9/16	1.15	33.89	6	2.60	96.13
1 7/16	.90	5.52	3 5/8	1.15	35.09	6 1/4	2.60	104.31
1 1/2	.90	6.01	3 11/16	1.15	36.31	6 1/2	3.45	112.82
1 9/16	.90	6.52	3 3/4	1.15	37.55	6 3/4	3.45	121.78
1 5/8	.90	7.05	3 13/16	1.30	38.81	7	3.45	130.85
1 11/16	.90	7.60	3 7/8	1.30	40.10	7 1/2	3.70	150.21
1 3/4	.90	8.18	3 15/16	1.30	41.40	8	4.65	170.90
1 13/16	.90	8.77	4	1.30	42.73	9	....	216.30
1 7/8	.90	9.39	4 1/16	1.40	44.07	10	....	267.04

Royersford Flat Boxes

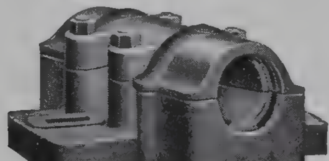
Split and Reamed Babbitted Bearings

Tapped for Grease Cups

For 1/2 to 2 15/16-inch shaft sizes. Complete information, prices on request.

Royersford Rigid Ring Oiling Pillow Blocks

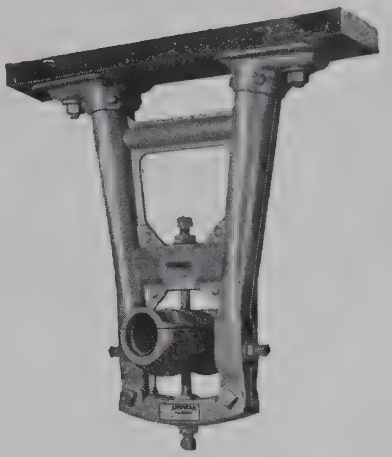
Reamed Babbitted Bearings



Available in range of sizes for 15/16 to 5 15/16-inch shaft sizes. Complete information and prices on request.

American Pressed Steel Hangers

With Ring-Oiling Bearings

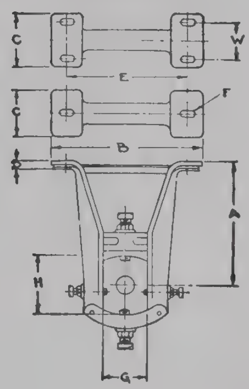


Hanger is stronger than cast iron hanger but weighs only half as much.

Hinged-type yoke makes installation easy. Four-point setscrew suspension facilitates accurate shaft alignment and adjustment.

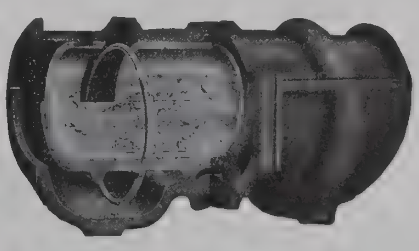
Can be used as drop hanger, floorstand and post hanger—with either ring-oiling or antifriction bearings.

Frames Only



Frame Size No.	Shaft Diam. In.	A Drop	B	C	D	E	F Bolts No. Req.	F Bolts Size In.	G	H	Each
1	15/16	7—9	12 1/2	5 1/4	7/16	10 1/4	2	5/8	4	5 3/4	$6.50
	to	10—12	15 1/4	5 1/2	1/2	12 1/2	2	5/8	4	5 3/4	7.30
	2	14—16	16 3/4	5 1/2	1/2	14 1/8	2	5/8	4	5 3/4	8.80
		18—20	20	5 1/2	1/2	16 3/4	4	1/2	4	5 3/4	10.50
2	2 3/16	7—9	14 1/8	5 1/2	1/2	12 1/4	2	3/4	4 13/16	6 3/8	9.90
	to	10—12	16 1/2	6 1/2	5/8	13 3/8	2	3/4	4 13/16	6 3/8	10.50
	2 11/16	14—16	18	6 1/2	5/8	15 1/8	2	3/4	4 13/16	6 3/8	12.20
		18—20	21	6 1/2	1/2	17 5/8	4	5/8	4 13/16	6 3/8	14.10

Ring-Oiling Bearings Only

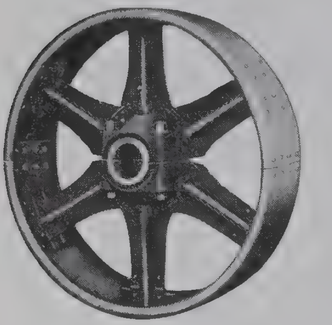


Ample bearing surface; babbitt of high quality and broached carefully to size. Generous oil reservoir assures abundant lubrication.

Shaft Size In.	Each	Lgth. In.	Width In.	Ht. In.	Shaft Size In.	Each	Lgth. In.	Width In.	Ht. In.
15/16	$3.50	4 3/4	3 5/16	3 5/8	1 15/16	$7.40	7	4	4
1	3.50	4 3/4	3 5/16	3 5/8	2	7.40	7	4	4
1 3/16	3.50	4 3/4	3 5/16	3 5/8	2 3/16	8.80	8 1/8	4 1/2	4 5/8
1 1/4	3.50	4 3/4	3 5/16	3 5/8	2 1/4	8.80	8 1/8	4 1/2	4 5/8
1 7/16	4.10	5 5/8	3 5/16	3 5/8	2 7/16	11.40	9 1/16	4 9/16	5
1 1/2	4.10	5 5/8	3 5/16	3 5/8	2 1/2	11.40	9 1/16	4 9/16	5
1 11/16	5.70	6 5/16	3 5/16	3 5/8	2 11/16	15.60	10	5 1/4	5 1/2
1 3/4	5.70	6 5/16	3 5/16	3 5/8	2 3/4	15.60	10	5 1/4	5 1/2

Steel Split Pulleys and Conveyor Pulleys

Standard Design—Straight or Crown Face



2-Arm construction in 3 to 6-in. diam., all faces.

6-Arm construction in 7 to 14-inch diam., all faces; 16 to 22-inch diam., 6-in. faces and narrower; 16 to 24-inch diam., 8-in. faces and wider (different type of 6-arm construction than for previous 16 to 22-inch diam.); 26 to 42-inch diam., all faces; and 44 to 48-inch diam., 6-in. faces only.

8-Arm construction in 44 to 82-inch diam., in two types: one for 16-inch faces and narrower, and one for 18-inch faces and wider.

Diam.	With Bushings, Each				
	Width Face, Inches				
In.	2	3	4	5	6
3	$5.20	$5.60	$6.00	$7.20	$7.60
4	6.20	6.60	7.00	7.40	7.90
5	7.20	7.70	8.10	8.50	8.90
6	8.30	8.70	9.10	9.50	10.00
7	*10.30	10.80	11.30	11.80	12.40
8	*10.80	11.30	12.00	12.80	13.60
9	.....	11.80	12.80	13.80	14.90
10	11.60	12.30	13.60	14.90	16.20
11	.....	*12.80	14.40	.....	17.60
12	*12.40	13.30	15.20	17.10	19.00
14	.....	15.50	17.40	*19.50	21.50
15	.....	.....	18.40	*20.60	22.60
16	.....	*17.70	19.50	*21.70	23.80
18	.....	*19.90	21.70	*24.00	26.10
20	.....	*22.10	24.00	*26.40	28.50
22	.....	*24.30	26.40	*28.80	31.00
24	.....	*26.50	28.90	*31.20	33.50
26	.....	.....	*36.00	*39.50	*43.00
28	.....	.....	*39.00	*43.00	*47.00
30	.....	.....	*42.00	*46.50	51.00
32	.....	.....	*45.00	*49.50	*54.00
34	.....	.....	*48.00	*53.00	*58.00
36	.....	.....	*51.00	*56.50	*62.00
38	.....	.....	.....	.....	*66.00
40	.....	.....	.....	.....	*70.00
42	.....	.....	.....	.....	*75.00
44	.....	.....	.....	.....	*78.00
46	.....	.....	.....	.....	*79.30
48	.....	.....	.....	.....	*85.00

Diam.	With Bushings, Each					
	Width Face, Inches					
In.	8	10	12	14	16	18
4	$11.00	......	......	......	......	.....
5	12.10	$13.50	......	......	......	.....
6	13.20	16.20	$17.00	......	......	.....
7	17.00	17.80	18.70	......	......	.....
8	18.50	19.50	22.50	......	......	.....
9	20.00	21.20	23.70	......	......	.....
10	21.60	22.90	24.10	......	......	.....
11	......	......	......	......	......	.....
12	25.00	26.50	28.00	*47.50	*52.50	*58.00
14	28.00	30.00	32.00	*51.00	*57.50	*64.50
15	......	......	......	......	......	.....
16	31.00	33.50	36.00	*54.50	*62.50	*71.00
18	34.00	37.00	40.00	*58.00	*67.50	*77.50
20	37.00	40.50	44.00	*61.50	*72.50	*84.00
22	40.50	44.20	48.00	*65.00	......	.....
24	44.00	48.00	52.00	......	......	.....
26	*49.00	*55.50	*62.00	......	......	.....
28	*54.00	*61.50	*69.00	......	......	.....
30	59.00	67.50	76.00	*93.00	*110.00	.....
32	*63.50	*73.00	*83.00	......	......	.....
34	*68.50	*79.00	*90.00	......	......	.....
36	*73.50	*85.00	*97.00	*121.00	*145.00	.....
38	*78.50	*91.00	*103.00	......	......	.....
40	*83.50	*97.00	*110.00	......	......	.....
42	*88.50	*103.00	*117.00	......	......	.....
44	*93.50	*109.00	*125.00	......	......	.....
46	*98.00	*115.00	*132.00	......	......	.....
48	*103.00	*122.00	*140.00	*187.00	......	.....

Also available—50 to 60-inch diameters in 8 to 18-in. face widths.

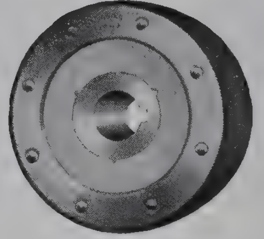
Diam.	Max. Bore	With Bushings, Each						
		Width Face, Inches						
In.	In.	20	22	24	26	28	30	32
6	2 7/16	$32.00	$34.00	$36.00	$38.00	$40.00	$42.00	$44.00
8	2 15/16	47.50	49.50	51.50	53.50	58.50	66.00	73.50
10	3 7/16	55.00	57.50	60.00	62.50	69.50	77.50	85.50
12	3 7/16	62.00	65.00	68.00	71.00	79.00	88.00	97.00
14	3 7/16	70.00	73.50	77.00	80.50	89.50	99.50	109.50
16	3 7/16	78.00	82.00	86.00	90.00	100.00	111.00	123.00
18	3 7/16	85.50	90.00	94.50	99.00	110.00	123.00	136.00
20	3 7/16	93.00	98.00	103.00	108.00	120.00	134.00	148.00
24	3 7/16	108.00	116.00	124.00	132.00	145.00	161.00	177.00
30	4 7/16	140.00	153.00	166.00	179.00	192.00	208.00	224.00
36	4 7/16	189.00	209.00	229.00	249.00	269.00	292.00	315.00

Face widths of 20 to 32 inches made to order in crown face; made to order in straight face when ordered in lots of 20 or more; 12-inch diameter and larger can be furnished with 4 7/16-inch bore.

Pulleys furnished with crown faces unless specified. Pulleys with diameters larger than shown are available; prices upon request.

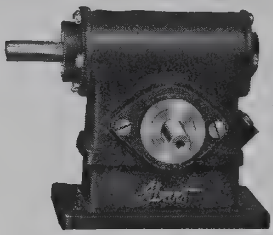
*Stocked in crown face only; special in straight face, 20 or more.

BROWNING MOTOR PULLEYS

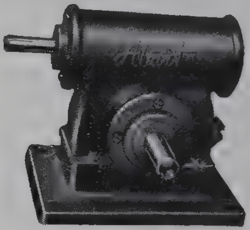


Prices and Complete information furnished on request.

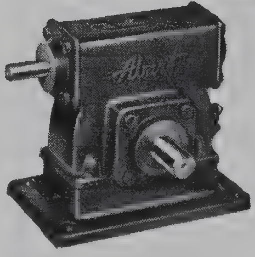
Abart Horizontal Worm Gear Speed Reducers



Type 1½A



Type 2¼A



Type 2⅝A

Hardened and ground worm. Power is transmitted at right angles. Full ball bearing mounted. Alloy steel heat-treated shafts; may operate in either direction. Reducer is fully enclosed; may be mounted in any position. Oil seals on input and output shafts prevent leakage.

Type......	1½A	2¼A	2⅝A
Each.......	$34.00	48.00	66.00
Weight lb.	8	19	22¾

Horsepower Ratings

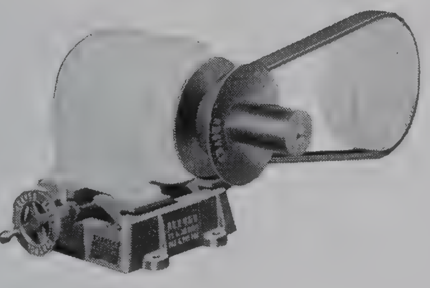
Standard Ratios	1800-RPM. Input				1200-RPM. Input		
	Output RPM.	Type 1½A Hp.	Type 2¼A Hp.	Type 2⅝A Hp.	Output RPM.	Type 2¼A Hp.	Type 2⅝A Hp.
5⅘	310	⅓	1	2	207	¾	1½
7¼	248	⅓	1	2	166	¾	1½
9⅔	186	⅓	⅞	2	124	⅝	1¼
12⅓	146	¼	⅞	1¾	97	⅝	1¼
14½	124	¼	¾	1½	83	½	1⅛
18½	97	¼	⅝	1¼	65	½	1
23	78	⅙	⅝	1	52	⅓	⅞
29	62	⅙	½	⅞	41	⅓	¾
37	49	⅛	⅜	⅝	32	⅕	½
48	37	⅛	¼	½	25	⅙	⅜
60	30	⅛	¼	⅖	20	⅛	⅜
75	24	..	⅛	⅜	16	..	3/10
100	18	..	⅛	¼	12	..	⅙

We Stock a Complete Line of

Power Transmission

Prompt Action in Emergencies

Reeves Vari-Speed Motor Pulleys



Simplified development of Reeves transmission, designed for requirements of light hp. and limited speed range and for application directly to shaft of any standard constant-speed motor.

Vari-Speed motor pulley is made in eight sizes, transmitting from ⅛ to 15 hp. and providing infinite speed adjustability over ratios of speed variation from 2:1 to 4:1, inclusive.

Unit forms actual driving element between motor and driven shaft, eliminating all auxiliary equipment, such as chain drives, gears, etc. It requires practically no more space for installation than any standard belt or chain drive.

OPERATION: Motor pulley assembly consists of two facing cone-shaped discs: one stationary, other sliding laterally—and a compression spring, mounted on any standard motor shaft; a motor base with an adjusting handwheel by which motor and disc assembly may be moved forward or backward, and a V-belt driving between discs and pulley on the driven machine. Any make of standard constant-speed motor can be used. When motor is nearest driven pulley, V-belt is at largest arc of contact over discs, running over their full diameter, and maximum speed is secured on driven machine. Turning the handwheel moves motor pulley away from driven shaft; V-belt runs over smaller arcs of contact between discs, decreasing speed until minimum is reached.

Approximate Maximum Overall Dimensions

These dimensions will vary, depending on size of motor used. (Dimensions derived, using maximum hp. motor.)

Disc Assembly No.	Base No.	Dimensions, Inches					
		Standard			Countershaft		
		Ht.	Lgth.	Width	Ht.	Lgth.	Width
906	20	11⅞	16¼	15⅝	11⅞	23¼	16⅞
907½	25	13	20⅛	17½	13	28⅛	22⅜
908	25	13	20⅛	17½	13	28⅛	22½
28½	25	13	20⅛	17½	13	28⅛	23⅛
909½	25	14½	20⅛	20⅞	14½	38½	29⅞
910	33	15¼	26⅛	23¼	15¼	38½	30¾
912	55	18½	31¾	30⅝	18½	51⅜	35¾
912–15	66	20⅛	31¾	30⅞	20⅛	51⅜	37

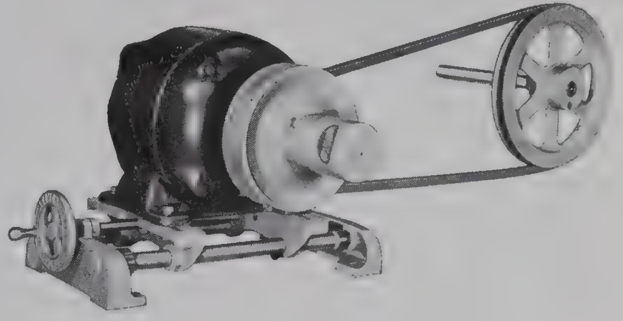
Speeds

Speed ratios, 2:1 to 4:1. Motor pulley—up to 15 hp. Maximum and minimum output speeds are dependent upon size of driven pulley. Speeds listed are for maximum and minimum size pulley only.

Disc Assembly No.	Base No.	Speed Ratio	Hp. Capacity		Output Speeds			
			At 1740 RPM.	At 1160 RPM.	At 1740 RPM.		At 1160 RPM.	
					Max.	Min.	Max.	Min.
906	20	3:1	¾	½	1515–505	540–180	1005–335	360–120
907½	25	3:1	1½	1	1425–475	540–180	945–315	360–120
908	25	3:1	2	1½	1545–515	585–195	1025–340	390–130
28½	25	4:1	2	1½	1615–404	687–172	1078–269	459–115
909½	25	3:1	3	2	1440–480	630–210	960–320	420–140
910	33	3:1	5	3	1560–520	680–225	1040–345	455–150
912	55	3:1	7½, 10	5, 7½	1560–520	705–235	1035–345	465–155
912–15	66	2:1	15	10	1065–532	750–375	705–352	495–247

Reeves Vari-Speed Jr. Motor Pulleys

For Light Machinery



Converts constant speed motors from fractional to 1½ hp. into variable speed units to provide complete speed adjustability, under instant, accurate regulation. Uses any standard motor and any standard section A or B V-belt.

Used in all types of plants—on bench lathes, pumps, short conveyors, cooling tunnels, blue print machines, and small printing presses. Speeds up output, widens work range, eliminates bottlenecks, and improves quality.

As furnished, pulley comprises a disc assembly and an adjustable motor base. The disc assembly consists of only five operating parts: two cone-faced discs (one stationary and one sliding, laterally), a self-adjusting tension spring, a spring adjusting nut and spring cover. This assembly is applied directly to the standard shaft of the motor, forming a variable pitch driving pulley. The motor is then mounted on the adjustable base, and the result is a variable speed power unit for driving through a standard V-belt to a sheave on the driven machine.

By turning a handwheel, motor is moved forward or back on the adjustable base. This changes the effective driving diameter of the cone-faced discs, thus changing speeds without stopping the machine or interrupting production in any way. The number of operating speeds available is infinite or countless within speed ratios from 1¾:1 to 2¾:1; and speed changes are made smoothly without jumps or steps.

Available in six different sizes of disc assembly, for use with motors from ⅛ to 1½ hp.

Motor base available in two sizes—either size may be used with any one of the six disc assemblies.

Countershaft Unit: for requirements of either unusual speed reduction or increase, a special design is available incorporating a countershaft, mounted on a common base for the entire unit. This design permits a double reduction—from the disc assembly to a driven sheave on the countershaft—and from any sprocket, pinion, sheave, or other accepted drive to the driven machine. Available in two sizes.

No.	Ratio Between Max. and Min. Speeds	Driven Sheave Min. O.D. In.	V-Belt Section	Motor Travel for Full Range In.
830	1.75:1	3	A	1 3/16
840	1.75:1	4	A	1 5/16
850	2.25:1	5	A	2⅛
860	2.75:1	6	A	2⅞
870	2.5:1	7	B	3⅛
875	2.5:1	7½	B	3½

No.	Minimum		Maximum		Pitch Diam. on Driving Discs	
	Motor RPM.	Hp. Capacity	Motor RPM.	Hp. Capacity	Minimum	Maximum
830	1160	⅛	1750	¼	1.925	3.375
840	1160	¼	1750	⅓	2.140	3.750
850	1160	⅓	1750	½	2.110	4.750
860	1160	½	1750	¾	2.090	5.750
870	1160	¾	1750	1	2.650	6.625
875	1160	1	1750	1½	2.850	7.125

Veelos—The Link V-Belt

Made in All Standard Sizes—Fits All Standard V-Belt Grooves

Available in Standard 100-Foot Reels

14 Production Advantages of Veelos

1. Adjustable to any length and adaptable to any drive. Any length can be uncoupled from a stock reel, then coupled and installed on drive.

2. Lowers investment in spare belts and storage space.

3. Maintains machine operation. Ends long work stoppages for belts may be replaced quickly from stock reels.

4. Costs less to install.

5. Simplifies drive layout and machine design. Drives can be made any length desired.

6. No deterioration of spare belts.

7. Higher power transmission efficiency. Easy adjustment assures that each strand of a multiple V-drive carries its exact share of the load.

8. Tension control lengthens belt and bearing life. Tension is easily controlled in each individual strand and throughout the entire drive.

9. Quick, easy tension adjustment eliminates slippage.

10. Lasts longer. Extremely flexible laminated construction reduces bending stresses. Equalized tension distributes load evenly over all strands.

11. Smooth running, quiet, vibrationless. Belt is perfectly balanced throughout its entire length.

12. Maximum efficiency for fixed center drives. Because length can be quickly adjusted, no need for slide rails.

13. Meets strict safety requirements. V-belt is approved by safety departments and safety inspectors.

14. When machines are retired from service, belts can be removed and used on other machines.

Available in all Sizes in Three Separate Types.

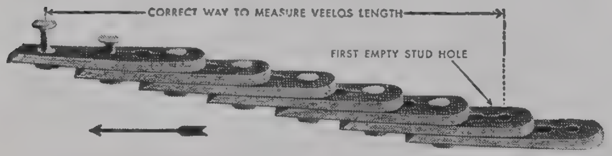
Regular Veelos—for general purpose use—cadmium plated steel studs.

Oilproof Veelos—For oily drives—brass plated steel studs.

Static-Conducting Veelos—For use where static sparks would be hazardous. Non-ferrous bronze studs and washers.

Double V available in O, A, B and C Sizes in all Three Types

How to Measure



Arrow Shows Direction of Belt Travel on All Normal Drives. On Reversing Drives, Veelos Can Be Run in Either Direction

Measure belt from end stud to stud nearest desired length. This becomes first empty stud hole after correct length is uncoupled. For matched set, make all other strands same number of links.

Sizes 00, 0, A, B and C must be made 1-inch per foot short of pitch length; size D must be made $\frac{3}{4}$-inch per foot short; sizes TD and TE must be made $\frac{1}{2}$-inch per foot short.

How to Install

After lengths have been coupled endless, place one belt in nearest groove of small sheave. Extend belt as far as it will go, then place in nearest groove of large sheave.

With small sizes of Veelos (00, 0, A and B) hold belt with hand as shown in top right-hand illustration. With large sizes of Veelos (C, D and E) hold belt with C-clamp or rope as shown in second illustration.

A cloth pad should be placed between belt and sheave rim. Turn drive manually until belt is in groove all around. Whenever drive is turned while installing belt, it must be turned manually.

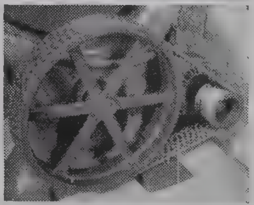
Goes on Fast—Stays on Right Insures Peak Production

Uncouple from Reel

Stock Veelos on reels and the right length of belt is always on hand. It can be uncoupled in less than 60 seconds.

Install on Drive

In a few minutes Veelos can easily be coupled endless for quick installation on any drive.



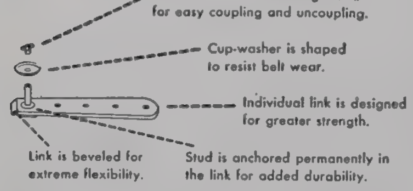
Machine Ready to Run

Machine is ready to run without use of slide rail or pivoted motor bases.

Size Belt	Per Foot	Size Belt	Per Foot
00, $\frac{5}{16}$ Inch	$.76	B, $\frac{21}{32}$ Inch	$.88
0, $\frac{3}{8}$ Inch	.76	C, $\frac{7}{8}$ Inch	1.36
A, $\frac{1}{2}$ Inch	.76	D, $1\frac{1}{4}$ Inch	2.15
Centerless Grinder	.88		

TD and TE Adjustable V-Belt for D and E Drives

Easy to Couple and Uncouple. Advanced design of Veelos TD and TE V-belts, with T-screw and cup-washer construction, permits quick installation of a complete set of V-belts on drive.


T-screw is made for strength and for easy coupling and uncoupling.
Cup-washer is shaped to resist belt wear.
Individual link is designed for greater strength.
Link is beveled for extreme flexibility.
Stud is anchored permanently in the link for added durability.

Strength. Link construction, with T-screw, stud and cup-washer, provides added strength at the points where greatest strain occurs. These special alloy steel T-screws, studs and cup washers provide increased durability and protect the high tensile strength link.

Lasts Longer. New construction, combining greater strength with extreme flexibility, reduces bending stresses. Equalized tension distributes the load evenly over all the belts and prevents excessive wear on one or more belts. Belts run cooler because they are not encased in an "envelope." They are cooled by direct air circulation. In case of accidental damage at any spot, only the damaged links need to be replaced, not the entire belt.

Uniform tension can be maintained on all belts simply by removing links. Belt life of the Veelos TD and TE V-belt is not limited by the amount of motor take-up. Good belts need never be discarded.

Balanced. TD and TE V-belts, with machine cut sides and uniform links, are perfectly balanced to provide smooth-running, vibrationless, full power delivery.

Rubber Coated. Rubber coating of TD and TE Veelos penetrates all exposed surfaces of belts, making them resistant to water and moisture absorption. This is particularly important to users in pulp, paper, lumber, marine, mining and food processing industries.

Available in Two Types

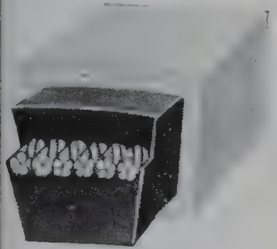
Regular Rubber Coated for general service.
Oil-Proof for oily and high temperature drives.

Size Belt	Per Foot
TD, $1\frac{1}{4}$ Inch	$2.80
TE, $1\frac{1}{2}$ Inch	3.55

Browning Gripbelts

For Multiple Groove Service

Can be used on drives running horizontally, vertically or at any angle. Drive arranged with slack side on top considered best, but can be operated with top side slack or tight. May be reversed.



Belts molded and not manufactured by cutting individual belts from sleeves. Cured in steel molds which insures exactness and uniformity in cross-sectional dimensions; eliminates whipping.

Cover completely surrounds core of belt, preventing longitudinal cords from separating from main body of cord by constant belt flexing.

A, ½x11/32 Inches

No.	Each	Pitch Lgth. In.	Wt. Lb.
A26	$1.30	27.0	.2
A31	1.40	32.0	.2
A33	1.45	34.0	.2
A34	1.48	35.0	.2
A35	1.50	36.0	.2
A36	1.53	37.0	.2
A37	1.57	38.0	.3
A38	1.60	39.0	.3
A42	1.70	43.0	.3
A43	1.75	44.0	.3
A46	1.80	47.0	.3
A48	1.84	49.0	.3
A51	1.90	52.0	.4
A53	1.94	54.0	.4
A54	1.97	55.0	.4
A55	1.99	56.0	.4
A56	2.10	57.0	.4
A58	2.10	59.0	.4
A60	2.10	61.0	.4
A62	2.15	63.0	.4
A64	2.20	65.0	.4
A66	2.25	67.0	.5
A68	2.30	69.0	.5
A70	2.40	71.0	.5
A71	2.40	72.0	.5
A75	2.50	76.0	.5
A78	2.60	79.0	.5
A80	2.70	81.0	.5
A85	2.90	86.0	.6
A90	3.10	91.0	.6
A96	3.30	97.0	.7
A105	3.60	106.0	.7
A110	3.88	111.0	.8
A112	4.00	113.0	.8
A120	4.30	121.0	.8
A128	4.60	129.0	.9
A136	4.90	137.0	.9
A144	5.19	145.0	1.0
A158	5.70	159.0	1.1
A173	6.20	174.0	1.2
A180	6.51	181.0	1.2

B, 21/32x7/16 Inches

No.	Each	Pitch Lgth. In.	Wt. Lb.
B35	$2.00	36.4	.4
B38	2.20	39.4	.4
B42	2.40	43.4	.5
B46	2.60	47.4	.5
B48	2.68	49.4	.5
B50	2.76	51.4	.6
B51	2.80	52.4	.6
B52	2.83	53.4	.6
B53	2.85	54.4	.6
B54	2.88	55.4	.6
B55	2.90	56.4	.6
B56	2.90	57.4	.6
B59	2.98	60.4	.6
B60	3.00	61.4	.7
B61	$3.04	62.4	.7
B62	3.08	63.4	.7
B63	3.12	64.4	.7
B64	3.15	65.4	.7
B65	3.20	66.4	.7
B66	3.24	67.4	.7
B67	3.27	68.4	.7
B68	3.30	69.4	.7
B70	3.39	71.4	.8
B71	3.43	72.4	.8
B75	3.60	76.4	.8
B77	3.70	78.4	.8
B78	3.75	79.4	.8
B79	3.80	80.4	.8
B80	3.85	81.4	.9
B81	3.90	82.4	.9
B82	4.00	83.4	.9
B83	4.00	84.4	.9
B85	4.10	86.4	.9
B90	4.30	91.4	1.0
B93	4.50	94.4	1.0
B95	4.60	96.4	1.0
B96	4.65	97.4	1.1
B97	4.70	98.4	1.1
B99	4.77	100.4	1.1
B100	4.80	101.4	1.1
B103	4.90	104.4	1.1
B105	5.00	106.4	1.1
B108	5.18	109.4	1.2
B112	5.40	113.4	1.2
B120	5.70	121.4	1.3
B124	5.90	125.4	1.4
B128	6.10	129.4	1.4
B133	6.40	134.4	1.5
B136	6.50	137.4	1.5
B144	6.90	145.4	1.6
B158	7.50	159.4	1.7
B162	7.80	163.4	1.8
B173	8.20	174.4	1.9
B180	8.60	181.4	1.9
B195	9.30	196.4	2.0
B210	10.00	211.4	2.3
B225	10.62	225.0	2.4
B240	11.30	240.0	2.6
B255	12.05	255.0	2.8
B270	12.80	270.0	2.9
B285	13.50	285.0	3.1
B300	14.20	300.0	3.2
B315	15.20	315.0	3.4
B360	18.35	360.0	3.9

C, 7/8x17/32 Inches

No.	Each	Pitch Lgth. In.	Wt. Lb.
C51	$4.60	53.0	1.0
C60	5.40	62.0	1.2
C68	6.10	70.0	1.3
C75	6.70	77.0	1.4
C81	7.30	83.0	1.6
C85	$7.50	87.0	1.6
C90	8.10	92.0	1.7
C96	8.60	98.0	1.8
C105	9.40	107.0	2.0
C109	9.75	111.0	2.1
C112	10.00	114.0	2.1
C115	10.26	117.0	2.2
C120	10.70	122.0	2.3
C128	11.40	130.0	2.4
C136	12.04	138.0	2.6
C144	12.80	146.0	2.8
C158	14.00	160.0	3.0
C162	14.30	164.0	3.1
C173	15.30	175.0	3.3
C180	16.00	182.0	3.4
C195	17.30	197.0	3.7
C210	18.70	212.0	4.0
C225	19.83	225.0	4.3
C240	21.00	240.0	4.6
C255	22.35	255.0	4.9
C270	23.70	270.0	5.2
C285	25.00	285.0	5.5
C300	26.30	300.0	5.7
C315	27.60	315.0	6.0
C330	28.90	330.0	6.3
*C345	30.20	345.0	6.6
C360	31.50	360.0	6.9
*C390	34.15	390.0	7.5
*C420	36.80	420.0	8.1

D, 1¼x¾ Inches

No.	Each	Pitch Lgth. In.	Wt. Lb.
D120	$19.80	122.4	3.8
D128	21.10	130.4	4.1
D144	23.70	146.4	4.6
D158	26.00	160.4	5.0
D162	26.80	164.4	5.2
D173	28.40	175.4	5.5
D180	29.50	182.4	5.7
D195	32.00	197.6	6.2
D210	34.50	213.1	6.7
D225	36.45	225.0	7.2
D240	38.80	240.0	7.7
D255	41.20	255.0	8.2
D270	43.70	270.0	8.6
*D285	46.10	285.0	9.1
D300	48.50	300.0	9.6
*D315	50.95	315.0	10.1
D330	53.40	330.0	10.5
*D345	55.80	345.0	11.0
D360	58.20	360.0	11.5
D390	63.05	390.0	12.5
D420	68.20	420.0	13.4
D480	78.20	480.0	15.4
*D540	88.20	540.0	17.3
*D600	98.20	600.0	19.2
*D660	106.70	660.0	21.1

*Not carried in stock.

Browning FHP Supercord V-Belts

New No.	Old No.	Each	New No.	Old No.	Each
3L110	FHP0095	$1.18	4L360	FHP134	$1.48
3L120	FHP0105	1.18	4L370	FHP135	1.50
3L130	FHP0115	1.18	4L380	FHP136	1.53
3L140	FHP0125	1.18	4L390	FHP137	1.57
3L150	FHP0135	1.18	4L400	FHP138	1.60
3L160	FHP0145	1.18	4L410	FHP139	1 63
3L170	FHP0155	1.18	4L420	FHP140	1.65
3L180	FHP0165	1.18	4L430	FHP141	1.68
3L190	FHP0175	1.18	4L440	FHP142	1.72
3L200	FHP0185	1.18	4L450	FHP143	1.75
3L210	FHP0195	1.18	4L460	FHP144	1.77
3L220	FHP0205	1.18	4L470	FHP145	1.79
3L230	FHP0215	1.18	4L480	FHP146	1.80
3L240	FHP0225	1.18	4L490	FHP147	1.82
3L250	FHP0235	1.18	4L500	FHP148	1.84
3L260	FHP0245	1.20	4L510	FHP149	1.86
3L270	FHP0255	1.22	4L520	FHP150	1.88
3L280	FHP0265	1.24	4L530	FHP151	1.90
3L290	FHP0275	1.26	4L540	FHP152	1.92
3L300	FHP0285	1.28	4L550	FHP153	1.94
3L310	FHP0295	1.29	4L560	FHP154	1.97
3L320	FHP0305	1.31	4L570	FHP155	1.99
3L330	FHP0315	1.33	4L580	FHP156	2.01
3L340	FHP0325	1.35	4L590	FHP157	2.03
3L350	FHP0335	1.38	4L600	FHP158	2.06
3L360	FHP0345	1.40	4L610	FHP159	2.08
3L370	FHP0355	1.43	4L620	FHP160	2.10
3L380	FHP0365	1.46	4L630	FHP161	2.13
3L390	FHP0375	1.49	4L640	FHP162	2.15
3L400	FHP0385	1.52	4L650	FHP163	2.18
3L410	FHP0395	1.55	4L660	FHP164	2.20
3L420	FHP0405	1.57	4L670	FHP165	2.22
3L430	FHP0415	1.59	4L680	FHP166	2.25
3L440	FHP0425	1.61	4L690	FHP167	2.28
3L450	FHP0435	1.64	4L700	FHP168	2.30
3L460	FHP0445	1.66	4L710	FHP169	2.35
3L470	FHP0455	1.69	4L720	FHP170	2.40
3L480	FHP0465	1.71	4L730	FHP171	2.42
3L490	FHP0475	1.73	4L740	FHP172	2.43
3L500	FHP0485	1.75	4L750	FHP173	2.45
3L510	FHP0495	1.77	4L760	FHP174	2.47
3L520	FHP0505	1.79	4L770	FHP175	2.50
3L530	FHP0515	1.81	4L780	FHP176	2.54
3L540	FHP0525	1.83	4L790	FHP177	2.58
3L550	FHP0535	1.85	4L800	FHP178	2.62
3L560	FHP0545	1.87	4L810	FHP179	2.66
3L570	FHP0555	1.89	4L820	FHP180	2.70
3L580	FHP0565	1.91	4L830	FHP181	2.74
3L590	FHP0575	1.93	4L840	FHP182	2.78
3L600	FHP0585	1.95	4L850	FHP183	2.82
3L610	FHP0595	1.98	4L860	FHP184	2.86
4L170	FHP115	1.24	4L870	FHP185	2.90
4L180	FHP116	1.24	4L880	FHP186	2.94
4L190	FHP117	1.24	4L890	FHP187	2.98
4L200	FHP118	1.24	4L900	FHP188	3.02
4L210	FHP119	1.24	4L910	FHP189	3.06
4L220	FHP120	1.24	4L920	FHP190	3.10
4L230	FHP121	1.24	4L930	FHP191	3.14
4L240	FHP122	1.24	4L940	FHP192	3.17
4L250	FHP123	1.24	4L950	FHP193	3.20
4L260	FHP124	1.26	4L960	FHP194	3.24
4L270	FHP125	1.28	4L970	FHP195	3.27
4L280	FHP126	1.30	4L980	FHP196	3.30
4L290	FHP127	1.32	4L990	FHP197	3.34
4L300	FHP128	1.34	4L1000	FHP198	3.37
4L310	FHP129	1.36	5L250	FHP222	1.52
4L320	FHP130	1.38	5L260	FHP223	1.56
4L330	FHP131	1.40	5L270	FHP224	1.60
4L340	FHP132	1.43	5L280	FHP225	1.63
4L350	FHP133	1.45	5L290	FHP226	1.67

Browning FHP Supercord V-Belts

New No.	Old No.	Each	New No.	Old No.	Each
5L300	FHP227	$1.70	5L660	FHP263	$3.12
5L310	FHP228	1.74	5L670	FHP264	3.16
5L320	FHP229	1.78	5L680	FHP265	3.20
5L330	FHP230	1.82	5L690	FHP266	3.24
5L340	FHP231	1.86	5L700	FHP267	3.27
5L350	FHP232	1.89	5L710	FHP268	3.30
5L360	FHP233	1.93	5L720	FHP269	3.34
5L370	FHP234	1.96	5L730	FHP270	3.39
5L380	FHP235	2.00	5L740	FHP271	3.43
5L390	FHP236	2.06	5L750	FHP272	3.47
5L400	FHP237	2.14	5L760	FHP273	3.51
5L410	FHP238	2.20	5L770	FHP274	3.56
5L420	FHP239	2.25	5L780	FHP275	3.60
5L430	FHP240	2.30	5L790	FHP276	3.65
5L440	FHP241	2.35	5L800	FHP277	3.70
5L450	FHP242	2.40	5L810	FHP278	3.75
5L460	FHP243	2.45	5L820	FHP279	3.80
5L470	FHP244	2.50	5L830	FHP280	3.85
5L480	FHP245	2.55	5L840	FHP281	3.90
5L490	FHP246	2.60	5L850	FHP282	4.00
5L500	FHP247	2.64	5L860	FHP283	4.03
5L510	FHP248	2.68	5L870	FHP284	4.07
5L520	FHP249	2.72	5L880	FHP285	4.10
5L530	FHP250	2.76	5L890	FHP286	4.14
5L540	FHP251	2.80	5L900	FHP287	4.18
5L550	FHP252	2.83	5L910	FHP288	4.22
5L560	FHP253	2.85	5L920	FHP289	4.26
5L570	FHP254	2.88	5L930	FHP290	4.30
5L580	FHP255	2.90	5L940	FHP291	4.36
5L590	FHP256	2.92	5L950	FHP292	4.43
5L600	FHP257	2.94	5L960	FHP293	4.50
5L610	FHP258	2.96	5L970	FHP294	4.55
5L620	FHP259	2.98	5L980	FHP295	4.60
5L630	FHP260	3.00	5L990	FHP296	4.65
5L640	FHP261	3.04	5L1000	FHP297	4.70
5L650	FHP262	3.08	.....	....	....

Browning Variable Pitch Machined Cast Iron Sheaves

1-Groove

No.	Stock Bores, Inches
1VP25	½
1VP30	½, ⅝, ¾
1VP34	½, ⅝, ¾, ⅞
1VP40	½, ⅝, ¾, ⅞
1VP44	½, ⅝, ¾, ⅞, 15/16, 1, 1⅛
1VP50	½, ⅝, ¾, ⅞, 15/16, 1, 1⅛
1VP56	½, ⅝, ¾, ⅞, 15/16, 1, 1⅛
*1VP62	¾, ⅞, 1, 1⅛, 1¼
*1VP68	¾, ⅞, 1, 1⅛, 1¼
2-Groove	
2VP36	⅝, ¾, ⅞, 1
2VP42	⅝, ¾, ⅞, 1, 1⅛
2VP50	⅝, ¾, ⅞, 1, 1⅛
*2VP56	⅝, ¾, ⅞, 1, 1⅛
*2VP62	¾, ⅞, 1, 1⅛, 1¼, 1⅜
*2VP68	¾, ⅞, 1, 1⅛, 1¼, 1⅜

1-Groove

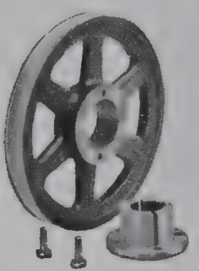
		Diameter, Inches — Pitch Range					
		0 Belts		A Belts		B Belts	
Part No.	Each	Min.	Max.	Min.	Max.	Min.	Max.
1VP25	$3.00	1.4	2.2	...	...	...	...
1VP30	3.00	1.8	2.7	...	...	...	...
1VP34	2.45	1.7	2.5	1.9	2.9	2.4	3.2
1VP40	2.70	2.3	3.1	2.4	3.4	2.7	3.7
1VP44	3.10	2.7	3.5	2.8	3.8	3.1	4.1
1VP50	3.50	3.3	4.1	3.4	4.4	3.7	4.7
1VP56	4.45	3.9	4.7	4.0	5.0	4.3	5.3
*1VP62	6.55	4.5	5.3	4.6	5.6	4.9	5.9
*1VP68	7.60	5.1	5.9	5.2	6.2	5.5	6.5
2-Groove							
2VP36	$4.60	1.9	2.7	2.0	3.0	2.5	3.3
2VP42	5.80	2.5	3.3	2.6	3.6	2.9	3.9
2VP50	6.55	3.3	4.1	3.4	4.4	3.7	4.7
*2VP56	7.80	3.9	4.7	4.0	5.0	4.3	5.3
*2VP62	10.95	4.5	5.3	4.6	5.6	4.9	5.9
*2VP68	11.90	5.1	5.9	5.2	6.2	5.5	6.5

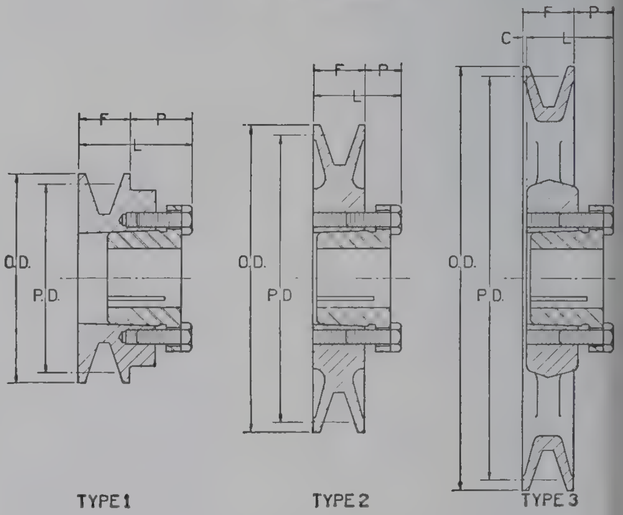
*Key type.

Browning Type BKH Fractional Horsepower Cast Iron Sheaves

Single Combination Groove for A and B Belts

With Split Taper Bushings





Made of close grained semi-steel, accurately machined and balanced; true running. Positive, tight clamping fit on shaft, easily mounted and removed.

Price includes bushing.

Baked enamel finish. Individually packaged.

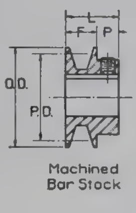
		Diameter — Inches				Dimensions — Inches				
No.	With Bushing Each	Outside	Pitch A	Pitch B	Type	F	L	P	C	Wt. Lb.
BK 30H	$3.05	3.16	2.40	2.80	1	⅞	1 15/16	1 1/16	..	2.0
BK 32H	3.05	3.36	2.60	3.00	1	⅞	1 15/16	1 1/16	..	2.1
BK 34H	3.05	3.56	2.80	3.20	1	⅞	1 15/16	1 1/16	..	2.2
BK 36H	3.10	3.76	3.00	3.40	2	⅞	1½	⅝	..	2.3
BK 40H	3.10	3.96	3.20	3.60	2	⅞	1½	⅝	..	2.4
BK 45H	3.15	4.26	3.50	3.90	2	⅞	1½	⅝	..	2.7
BK 47H	3.15	4.46	3.70	4.10	2	⅞	1½	⅝	..	2.9
BK 50H	3.20	4.76	4.00	4.40	2	⅞	1½	⅝	..	3.0
BK 52H	3.25	4.96	4.20	4.60	2	⅞	1½	⅝	..	3.1
BK 55H	3.30	5.26	4.50	4.90	2	⅞	1½	⅝	..	3.2
BK 57H	3.35	5.46	4.70	5.10	2	⅞	1½	⅝	..	3.3
BK 60H	3.40	5.76	5.00	5.40	3	⅞	1½	11/16	1/16	3.4
BK 62H	3.55	5.96	5.20	5.60	3	⅞	1½	11/16	1/16	3.5
BK 65H	3.80	6.26	5.50	5.90	3	⅞	1½	11/16	1/16	3.6
BK 67H	4.00	6.46	5.70	6.10	3	⅞	1½	11/16	1/16	3.7
BK 70H	4.30	6.76	6.00	6.40	3	⅞	1½	11/16	1/16	3.8
BK 72H	4.35	6.96	6.20	6.60	3	⅞	1½	11/16	1/16	3.9
BK 75H	4.55	7.26	6.50	6.90	3	⅞	1½	11/16	1/16	4.5
BK 77H	4.65	7.46	6.70	7.10	3	⅞	1½	11/16	1/16	4.8
BK 80H	4.70	7.76	7.00	7.40	3	⅞	1½	11/16	1/16	5.0
BK 85H	4.95	8.26	7.50	7.90	3	⅞	1½	11/16	1/16	5.4
BK 90H	5.10	8.76	8.00	8.40	3	⅞	1½	11/16	1/16	5.7
BK 95H	5.35	9.26	8.50	8.90	3	⅞	1½	11/16	1/16	6.1
BK100H	5.45	9.76	9.00	9.40	3	⅞	1½	11/16	1/16	6.4
BK105H	5.90	10.26	9.50	9.90	3	⅞	1½	11/16	1/16	6.7
BK110H	6.15	10.76	10.00	10.40	3	⅞	1½	11/16	1/16	7.0
BK115H	6.25	11.26	10.50	10.90	3	⅞	1½	11/16	1/16	7.5
BK120H	6.30	11.76	11.00	11.40	3	⅞	1½	11/16	1/16	8.0
BK130H	7.20	12.76	12.00	12.40	3	⅞	1½	11/16	1/16	8.6
BK140H	7.85	13.76	13.00	13.40	3	⅞	1½	11/16	1/16	10.5
BK160H	9.15	15.76	15.00	15.40	3	⅞	1½	11/16	1/16	11.3
BK190H	10.65	18.76	18.00	18:40	3	⅞	1½	11/16	1/16	13.6

Browning Fractional Horsepower Pressed Steel Single Groove Sheaves

All sheaves have steel hubs. Precision bored. Extra heavy welded die formed steel. Fitted with one slotted head set-screw located over the keyseat.

Bushings

Part No.	Each	O.D. In.	I.D. In.	Part No.	Each	O.D. In.	I.D. In.
FHP18	$.45	1/2	1/4	FHP4	$.55	1	3/4
FHP21	.45	1/2	5/16	FHP10	.55	1	13/16
FHP19	.45	1/2	7/16	FHP5	.55	1	7/8
FHP6	.45	3/4	3/8	FHP20	.55	1	15/16
FHP7	.45	3/4	7/16	FHP12	.75	1 7/16	1 1/16
FHP1	.45	3/4	1/2	FHP13	.75	1 7/16	1 1/8
FHP8	.45	3/4	9/16	FHP14	.75	1 7/16	1 3/16
FHP2	.45	3/4	5/8	FHP15	.75	1 7/16	1 1/4
FHP11	.55	1	1/2	FHP16	.75	1 7/16	1 5/16
FHP3	.55	1	5/8	FHP17	.75	1 7/16	1 3/8
FHP9	.55	1	11/16	....	...	...	...



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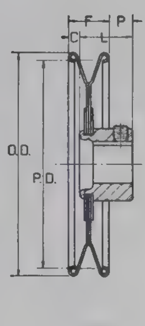

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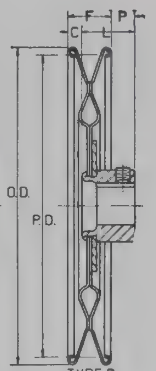


TYPE 3

For A Belts

Part No.	Each	Nom. O.D. In.	Pitch Diam. Inches A	Pitch Diam. Inches B	Type	Stock Bores, Inches	Dimensions, Inches F	L	P	C	Wt. Lb.
AS15	$.60	1.50	1.25	.....	1	3/8, 1/2	5/8	1 1/16	7/16	..	.3
AS17	.70	1.75	1.50	.....	1	3/8, 1/2, 5/8, *3/4	5/8	1 1/16	7/16	..	.4
AS20	.75	2.00	1.80	.....	1F	3/8, 1/2	5/8	5/8	..	..	.4
AS20	.75	2.00	1.80	.....	1	5/8, 3/4	5/8	1 1/16	7/16	..	.5
AS21	.75	2.10	1.90	.....	1F	3/8, 1/2	5/8	5/8	..	..	.4
AS21	.75	2.10	1.90	.....	1	5/8, 3/4	5/8	1 1/16	7/16	..	.5
AS22	.75	2.20	2.00	.....	1F	3/8, 1/2	5/8	5/8	..	..	.5
AS22	.75	2.20	2.00	.....	1	5/8, 3/4	5/8	1 1/16	7/16	..	.6
AS23	.75	2.30	2.10	.....	1F	3/8, 1/2, 5/8	5/8	5/8	..	..	.5
AS23	.75	2.30	2.10	.....	1	3/4	5/8	1 1/16	7/16	..	.6
AS25	.80	2.50	2.30	.....	1F	1/2, 5/8, 3/4, 7/8	5/8	5/8	..	..	.6
AS26	.85	2.60	2.40	.....	1F	1/2, 5/8, 3/4, 7/8	5/8	5/8	..	..	.7
AS27	.85	2.70	2.50	.....	1F	1/2, 5/8, 3/4, 7/8	5/8	5/8	..	..	.7
AS28	.90	2.80	2.60	.....	1F	1/2, 5/8, 3/4, 7/8	5/8	5/8	..	..	.8
AS30	1.05	3.00	2.80	.....	1F	1/2, 5/8, 3/4, 7/8, 1	5/8	5/8	..	..	1.1
AS32	1.10	3.20	3.00	.....	1F	1/2, 5/8, 3/4, 7/8, 1	5/8	5/8	..	..	1.3
AS34	1.20	3.40	3.20	.....	1F	1/2, 5/8, 3/4, 7/8, 1	5/8	5/8	..	..	1.4
AS39	1.30	3.90	3.50	.....	2	1/2, 5/8, 3/4, 7/8, 1	15/16	1 3/16	9/16	5/16	1.0
AS44	1.35	4.40	4.00	.....	2	1/2, 5/8, 3/4, 7/8, 1	15/16	1 3/16	9/16	5/16	1.1
AS49	1.45	4.90	4.50	.....	2	1/2, 5/8, 3/4, 7/8, 1	15/16	1 3/16	9/16	5/16	1.3
AS54	1.60	5.40	5.00	.....	2	1/2, 5/8, 3/4, 7/8, 1	15/16	1 3/16	9/16	5/16	1.4
AS64	1.80	6.40	6.00	.....	2	1/2, 5/8, 3/4, 7/8, 1	15/16	1 3/16	9/16	5/16	1.8
AS74	2.35	7.40	7.00	.....	2	1/2, 5/8, 3/4, ... 1	15/16	1 3/16	9/16	5/16	2.3
†AS84	2.65	8.40	8.00	.....	2	1/2, 5/8, 3/4, ... 1	15/16	1 3/16	17/32	9/32	3.0
†AS94	2.95	9.40	9.00	.....	3	1/2, 5/8, 3/4, ... 1	15/16	1 3/16	17/32	9/32	3.5
†AS104	3.25	10.40	10.00	.....	3	1/2, 5/8, 3/4, ... 1	15/16	1 3/16	17/32	9/32	3.9
†AS114	3.75	11.40	11.00	.....	3	... 5/8, 3/4, ... 1	15/16	1 3/16	17/32	9/32	4.3
†AS124	4.30	12.40	12.00	.....	3	1/2, 5/8, 3/4, ... 1	15/16	1 3/16	17/32	9/32	5.2

Standard Keyseats

Bore Inches	Keyseat Inches
3/8 to 1/2	None
5/8 to 7/8	3/16x3/32
15/16 to 1 1/4	1/4x1/8
1 3/8 to 1 7/16	3/8x3/16

For B Belts

Part No.	Each	Nom. O.D. In.	Pitch Diam. Inches A	Pitch Diam. Inches B	Type	Stock Bores, Inches	Dimensions, Inches F	L	P	C	Wt. Lb.
BS24	$1.00	2.40	1.80	2.20	1F	1/2	3/4	3/4	..	..	.5
BS24	1.00	2.40	1.80	2.20	1	5/8, 3/4	3/4	1 3/16	7/16	..	.6
BS25	1.10	2.50	1.90	2.30	1F	1/2	3/4	3/4	..	..	.5
BS25	1.10	2.50	1.90	2.30	1	5/8, 3/4, 7/8	3/4	1 3/16	7/16	..	.6
BS26	1.15	2.60	2.00	2.40	1F	1/2	3/4	3/4	..	..	.6
BS26	1.15	2.60	2.00	2.40	1	5/8, 3/4, 7/8	3/4	1 3/16	7/16	..	.7
BS27	1.20	2.70	2.10	2.50	1F	1/2, 5/8	3/4	3/4	..	..	.7
BS27	1.20	2.70	2.10	2.50	1	3/4 .... 7/8	3/4	1 3/16	7/16	..	.8
BS28	1.20	2.80	2.20	2.60	1F	1/2, 5/8, 3/4, 7/8	3/4	3/4	..	..	1.0
BS28	1.20	2.80	2.20	2.60	1	1	3/4	1 3/16	7/16	..	1.1
BS30	1.25	3.00	2.40	2.80	1F	1/2, 5/8, 3/4, 7/8, 1	3/4	3/4	..	..	1.2
BS32	1.35	3.20	2.60	3.00	1F	1/2, 5/8, 3/4, 7/8, 1	3/4	3/4	..	..	1.4
BS34	1.40	3.40	2.80	3.20	2	1/2, 5/8, 3/4	1 1/16	1 3/16	7/16	5/16	.8
BS36	1.45	3.60	3.00	3.40	2	1/2, 5/8, 3/4	1 1/16	1 3/16	7/16	5/16	.8
BS40	1.50	4.00	3.20	3.60	2	1/2, 3/8, 3/4, 7/8, 1	1 1/16	1 3/16	7/16	5/16	.9
BS44	1.55	4.40	3.40	3.80	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.0
BS45	1.55	4.50	3.50	3.90	2	1/2, 5/8, 3/4, 7/8, 1	1 1/16	1 3/16	7/16	5/16	1.1
BS46	1.60	4.60	3.60	4.00	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.2
BS48	1.65	4.80	3.80	4.20	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.2
BS50	1.70	5.00	4.00	4.40	2	1/2, 5/8, 3/4, 7/8, 1	1 1/16	1 3/16	7/16	5/16	1.3
BS52	1.70	5.20	4.20	4.60	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.4
BS54	1.70	5.40	4.40	4.80	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.4
BS55	1.70	5.50	4.50	4.90	2	1/2, 5/8, 3/4, 7/8, 1	1 1/16	1 3/16	7/16	5/16	1.4
BS56	1.75	5.60	4.60	5.00	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.5
BS58	1.75	5.80	4.80	5.20	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.6
BS60	1.80	6.00	5.00	5.40	2	1/2, 5/8, 3/4, 7/8, 1	1 1/16	1 3/16	7/16	5/16	1.6
BS62	1.80	6.20	5.20	5.60	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.7
BS64	2.05	6.40	5.40	5.80	2	...... 3/4 1	1 1/16	1 3/16	7/16	5/16	1.8
BS70	2.35	7.00	6.00	6.40	2	1/2, 5/8, 3/4 1	1 1/8	1 3/16	7/16	3/8	2.0
‡BS80	2.70	8.00	7.00	7.40	2	1/2, 5/8, 3/4 .... 1, 1 1/8, 1 3/16, 1 1/4, 1 7/16	1 1/8	1 3/16	7/16	3/8	2.6
‡BS90	2.95	9.00	8.00	8.40	2	... 5/8, 3/4 1	1 1/8	1 3/16	7/16	3/8	3.2
‡BS100	3.30	10.00	9.00	9.40	3	... 5/8, 3/4 .... 1, 1 1/8, 1 3/16, 1 1/4, 1 7/16	1 1/8	1 3/16	7/16	3/8	3.8
‡BS110	3.75	11.00	10.00	10.40	3	... 5/8, 3/4 .... 1, 1 1/8, 1 3/16, 1 1/4, 1 7/16	1 1/8	1 3/16	7/16	3/8	4.1
BS120	4.25	12.00	11.00	11.40	3	...... 3/4 1	1 1/8	1 3/16	7/16	3/8	4.9
§BS130	4.95	13.00	12.00	12.40	3	... 5/8, 3/4 .... 1, 1 1/8, 1 3/16, 1 1/4, 1 7/16	1 1/8	1 3/16	1/2	7/16	5.8
§BS160	6.45	16.00	15.00	15.40	3	... 3/4 .... 1, 1 1/8, 1 3/16, 1 1/4, 1 7/16	1 1/8	1 3/16	1/2	7/16	7.6
§BS190	7.65	19.00	18.00	18.40	3	... 3/4 .... 1, 1 1/8, 1 3/16, 1 1/4, 1 7/16	1 1/8	1 3/16	1/2	7/16	10.3

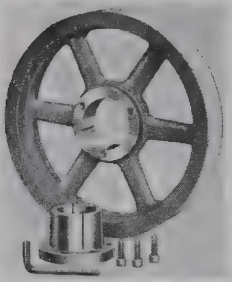
Standard Keyseat

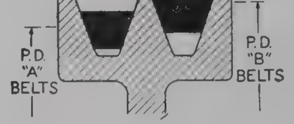
Bore Inches	Keyseat Inches
1/2	None
5/8 to 7/8	3/16x3/32
15/16 to 1 1/4	1/4x1/8
1 3/8 to 1 7/16	3/8x3/16

*No keyseat. †For 1 1/8-inch bores and larger: L, 1 17/32 inch; P, 7/8 inch.
‡For 1 1/8-inch bores and larger: L, 1 17/32 inch; P, 25/32 inch; C, 3/8 inch.
§For 1 1/8-inch bores and larger: L, 1 17/32 inch; P, 27/32 inch; C, 7/16 inch.

Type TB Browning Gripbelt Cast Iron Sheaves

With Split Taper Bushings
Combination Groove for A or B Belts





Bushing is split so that when the locking cap-screws force bushing in tapered bore, the bushing grips the shaft with a positive clamping fit. This will withstand vibration and punishing loads without being loosened.

Sheave and bushing assembly are keyed to shaft and held in place by compression. This gives added driving strength.

Sheave is easily removed from shaft by inserting and tightening two of the cap-screws in the tapped holes in the bushing flange. This forces the bushing loose from the sheave and releases the compression so that the entire assembly will slide from the shaft.

Easy to mount—easy to remove—no tools required—positive locking clamp fit—no pressing bushings in sheaves.

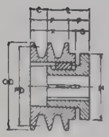
Type TB Sheaves are furnished only in the sizes shown and to the dimensions indicated.

Prices shown include bushings.

Maximum stock bore with P bushings is 1¾ inches, and with Q bushings is 2⅝ inches.

All necessary cap-screws, wrench and key for fastening bushing in sheave are furnished with each bushing.

Bore Range.....in.	½ and 9/16	⅝ to ⅞	15/16 to 1 5/16	1⅜ to 1 13/16	1⅞ to 2¼	2 5/16 to 2⅝
Keyseat........in.	⅛x1/16	3/16x3/32	¼x⅛	⅜x3/16	½x¼	⅝x5/16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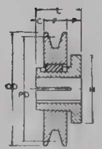
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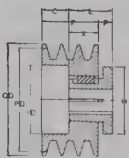
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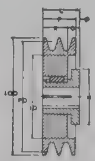
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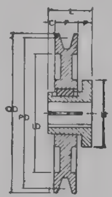
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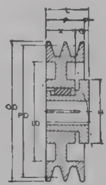
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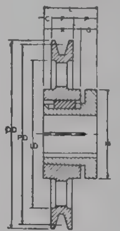
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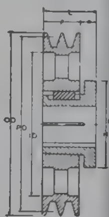
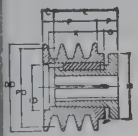

Type 17

Diameter, Inches				1 Groove, F=1 Inch											2 Grooves, F=1¾ Inches										
Pitch							Dimensions, Inches											Dimensions, Inches							
A	B	Outside	Inside	Type	No.	Each	L	P	*C	H	G	X	Bushing	Wt. Lb.	Type	No.	Each	L	P	C	H	G	X	Bushing	Wt. Lb.
3.0	**3.4**	3.76	2	2	**1TB34**	**$5.00**	1 15/16	1 1/16	⅛	3	⅝	1 7/16	P1	3.5	2	**2TB34**	**$6.90**	1 15/16	1 1/16	⅞	3	⅝	2 3/16	P1	4.5
3.2	**3.6**	3.96	2 1/16	2	**1TB36**	**5.10**	1 15/16	1 1/16	⅛	3	⅝	1 7/16	P1	4.0	2	**2TB36**	**7.00**	1 15/16	1 1/16	⅞	3	⅝	2 3/16	P1	4.7
3.4	**3.8**	4.16	2 5/16	2	**1TB38**	**5.20**	1 15/16	1 1/16	⅛	3	⅝	1 7/16	P1	4.2	5	**2TB38**	**7.10**	1 15/16	⅝	7/16	3	..	1 5/16	P1	4.5
3.6	**4.0**	4.36	2½	4	**1TB40**	**5.30**	1 15/16	⅝	5/16P	3	..	1	P1	3.5	5	**2TB40**	**7.20**	1 15/16	⅝	7/16	3	..	1 5/16	P1	4.5
3.8	**4.2**	4.56	2 11/16	4	**1TB42**	**5.40**	1 15/16	⅝	5/16P	3	..	1	P1	3.8	5	**2TB42**	**7.30**	1 15/16	⅝	7/16	3	..	1 5/16	P1	5.3
4.0	**4.4**	4.76	2⅞	4	**1TB44**	**5.50**	1 15/16	⅝	5/16P	3	..	1	P1	4.0	6	**2TB44**	**7.40**	1 15/16	3/16	..	3	⅝	1 5/16	P1	5.5
4.2	**4.6**	4.96	3 1/16	4	**1TB46**	**5.60**	1 15/16	⅝	5/16P	3	..	1	P1	4.3	6	**2TB46**	**7.60**	1 15/16	3/16	..	3	⅝	1 5/16	P1	6.0
4.4	**4.8**	5.16	3 5/16	4	**1TB48**	**5.70**	1 15/16	⅝	5/16P	3	..	1	P1	4.7	6	**2TB48**	**7.80**	1 15/16	3/16	..	3	⅝	1 5/16	P1	6.8
4.6	**5.0**	5.36	3½	4	**1TB50**	**5.80**	1 15/16	⅝	5/16P	3	..	1	P1	5.0	6	**2TB50**	**8.00**	1 15/16	3/16	..	3	⅝	1 5/16	P1	7.2
4.8	**5.2**	5.56	3 11/16	4	**1TB52**	**6.00**	1 15/16	⅝	5/16P	3	..	1	P1	5.8	6	**2TB52**	**8.20**	1 15/16	3/16	..	3	⅝	1 5/16	P1	7.7
5.0	**5.4**	5.76	3⅞	4	**1TB54**	**6.20**	1 15/16	⅝	5/16P	3	..	1	P1	6.2	6	**2TB54**	**8.50**	1 15/16	3/16	..	3	⅝	1 5/16	P1	8.3
5.2	**5.6**	5.96	4 1/16	4	**1TB56**	**6.40**	1 15/16	⅝	5/16P	3	..	1	P1	6.8	6	**2TB56**	**8.70**	1 15/16	3/16	..	3	⅝	1 5/16	P1	9.0
5.4	**5.8**	6.16	4 5/16	4	**1TB58**	**6.60**	1 15/16	⅝	5/16P	3	..	1	P1	7.1	6	**2TB58**	**9.00**	1 15/16	3/16	..	3	⅝	1 5/16	P1	10.0
5.6	**6.0**	6.36	4½	4	**1TB60**	**6.80**	1 15/16	⅝	5/16P	3	..	1	P1	8.0	6	**2TB60**	**9.30**	1 15/16	3/16	..	3	⅝	1 5/16	P1	11.1
5.8	**6.2**	6.56	4 11/16	10	**1TB62**	**7.00**	1 15/16	⅝	5/16P	3	..	1	P1	7.0	12	**2TB62**	**9.60**	1 15/16	3/16	..	3	⅝	1 5/16	P1	9.5
6.0	**6.4**	6.76	4⅞	10	**1TB64**	**7.20**	1 15/16	⅝	5/16P	3	..	1	P1	7.8	12	**2TB64**	**9.90**	1 15/16	3/16	..	3	⅝	1 5/16	P1	9.5
6.2	**6.6**	6.96	5 1/16	10	**1TB66**	**7.40**	1 15/16	⅝	5/16P	3	..	1	P1	7.5	12	**2TB66**	**10.20**	1 15/16	3/16	..	3	⅝	1 5/16	P1	10.5
6.4	**6.8**	7.16	5 5/16	10	**1TB68**	**7.60**	1 15/16	⅝	5/16P	3	..	1	P1	8.5	12	**2TB68**	**10.50**	1 15/16	3/16	..	3	⅝	1 5/16	P1	10.3
6.6	**7.0**	7.36	5½	16	**1TB70**	**7.70**	1 15/16	25/32	5/32P	3	⅝	1 5/16	P1	11.0	11	**2TB70**	**10.60**	2½	¾	..	4⅛	..	1¾	Q1	14.8
7.0	**7.4**	7.76	5 15/16	16	**1TB74**	**8.00**	1 15/16	25/32	5/32P	3	⅝	1 5/16	P1	8.8	11	**2TB74**	**10.80**	2½	¾	..	4⅛	..	1¾	Q1	15.2
7.6	**8.0**	8.36	6½	16	**1TB80**	**8.10**	1 15/16	25/32	5/32P	3	⅝	1 5/16	P1	9.5	11	**2TB80**	**11.10**	2½	¾	..	4⅛	..	1¾	Q1	16.3
8.2	**8.6**	8.96	7 1/16	16	**1TB86**	**9.10**	1 15/16	25/32	5/32P	3	⅝	1 5/16	P1	9.2	17	**2TB86**	**12.00**	2½	¾	..	4⅛	..	1¾	Q1	19.3
8.6	**9.0**	9.36	7½	16	**1TB90**	**9.20**	1 15/16	25/32	5/32P	3	⅝	1 5/16	P1	10.3	17	**2TB90**	**12.20**	2½	¾	..	4⅛	..	1¾	Q1	18.6
9.0	**9.4**	9.76	7 15/16	16	**1TB94**	**9.70**	1 15/16	25/32	5/32P	3	⅝	1 5/16	P1	10.7	17	**2TB94**	**12.70**	2½	¾	..	4⅛	..	1¾	Q1	19.4
10.6	**11.0**	11.36	9 7/16	16	**1TB110**	**11.10**	1 15/16	25/32	5/32P	3	⅝	1 5/16	P1	14.8	17	**2TB110**	**14.30**	2½	¾	..	4⅛	..	1¾	Q1	23.0
12.0	**12.4**	12.76	10 15/16	16	**1TB124**	**12.90**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	20.5	17	**2TB124**	**15.90**	2½	¾	..	4⅛	..	1¾	Q1	25.1
13.2	**13.6**	13.96	12 1/16	16	**1TB136**	**13.50**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	22.7	17	**2TB136**	**16.90**	2½	¾	..	4⅛	..	1¾	Q1	27.7
15.0	**15.4**	15.76	13 15/16	16	**1TB154**	**15.20**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	25.5	17	**2TB154**	**19.00**	2½	¾	..	4⅛	..	1¾	Q1	30.2
18.0	**18.4**	18.76	16 15/16	16	**1TB184**	**17.60**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	31.8	17	**2TB184**	**22.60**	2½	¾	..	4⅛	..	1¾	Q1	36.6
19.5	**20.0**	20.36	18½	16	**1TB200**	**29.60**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	39.0	17	**2TB200**	**36.60**	2½	¾	..	4⅛	..	1¾	Q1	44.0
24.5	**25.0**	25.36	23½	16	**1TB250**	**35.80**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	46.0	17	**2TB250**	**43.40**	2½	¾	..	4⅛	..	1¾	Q1	60.0
29.5	**30.0**	30.36	28½	16	**1TB300**	**42.30**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	62.0	17	**2TB300**	**52.00**	2½	¾	..	4⅛	..	1¾	Q1	76.0
37.5	**38.0**	38.36	36½	16	**1TB380**	**51.00**	2½	1⅛	⅜P	4⅛	¾	1¾	Q1	82.0	17	**2TB380**	**63.40**	2½	¾	..	4⅛	..	1¾	Q1	94.0

*Dimensions followed by P indicate that small end of bushing projects beyond rim by amount shown.

Type TB Browning Gripbelt Cast Iron Sheaves

With Split Taper Bushings
Combination Groove for A or B Belts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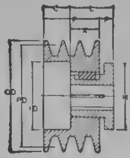
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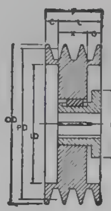
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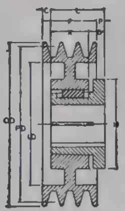
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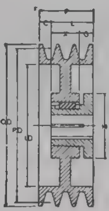
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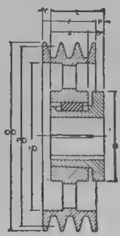
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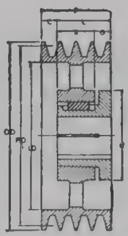

Type 19

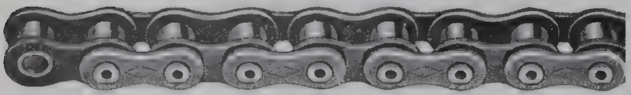
Diameter, Inches				3 Grooves, F-2½ Inches											4 Grooves, F-3¼ Inches										
Pitch							Dimensions, Inches											Dimensions, Inches							
A	B	Outside	Inside	Type	No.	Each	L	P	C	H	G	X	Bushing	Wt. Lb.	Type	No.	Each	L	P	C	H	G	X	Bushing	Wt. Lb.
3.0	3.4	3.76	2	3	3TB34	$8.30	2 15/16	1 1/16	5/8	3	5/8	2 5/16	P2	5.2	3	4TB34	$9.80	2 15/16	1 1/16	1 3/8	3	5/8	2 5/16	P2	6.8
3.2	3.6	3.96	2 1/16	3	3TB36	8.40	2 15/16	1 1/16	5/8	3	5/8	2 5/16	P2	5.8	3	4TB36	10.00	2 15/16	1 1/16	1 3/8	3	5/8	2 5/16	P2	7.8
3.4	3.8	4.16	2 5/16	5	3TB38	8.50	1 15/16	5/8	1 3/16	3	..	1 5/16	P1	5.3	5	4TB38	10.20	1 15/16	5/8	1 15/16	3	..	1 5/16	P1	7.5
3.6	4.0	4.36	2 1/2	5	3TB40	8.60	1 15/16	5/8	1 3/16	3	..	1 5/16	P1	5.5	5	4TB40	10.40	1 15/16	5/8	1 15/16	3	..	1 5/16	P1	8.0
3.8	4.2	4.56	2 11/16	5	3TB42	8.70	1 15/16	5/8	1 3/16	3	..	1 5/16	P1	6.2	5	4TB42	10.60	1 15/16	5/8	1 15/16	3	..	1 5/16	P1	9.2
4.0	4.4	4.76	2 7/8	8	3TB44	8.90	1 15/16	...	9/16	3	5/8	1 5/16	P1	7.0	8	4TB44	10.90	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	10.3
4.2	4.6	4.96	3 1/16	8	3TB46	9.10	1 15/16	...	9/16	3	5/8	1 5/16	P1	7.2	8	4TB46	11.20	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	11.3
4.4	4.8	5.16	3 5/16	8	3TB48	9.30	1 15/16	...	9/16	3	5/8	1 5/16	P1	8.0	8	4TB48	11.50	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	12.0
4.6	5.0	5.36	3 1/2	8	3TB50	9.50	1 15/16	...	9/16	3	5/8	1 5/16	P1	8.5	8	4TB50	11.90	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	13.7
4.8	5.2	5.56	3 11/16	8	3TB52	9.80	1 15/16	...	9/16	3	5/8	1 5/16	P1	9.5	8	4TB52	12.30	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	14.8
5.0	5.4	5.76	3 7/8	8	3TB54	10.10	1 15/16	...	9/16	3	5/8	1 5/16	P1	10.2	8	4TB54	12.70	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	14.5
5.2	5.6	5.96	4 1/16	8	3TB56	10.40	1 15/16	...	9/16	3	5/8	1 5/16	P1	10.7	8	4TB56	13.20	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	15.8
5.4	5.8	6.16	4 5/16	8	3TB58	10.80	1 15/16	...	9/16	3	5/8	1 5/16	P1	11.3	8	4TB58	13.70	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	16.5
5.6	6.0	6.36	4 1/2	8	3TB60	11.10	1 15/16	...	9/16	3	5/8	1 5/16	P1	12.1	8	4TB60	14.20	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	18.3
5.8	6.2	6.56	4 11/16	14	3TB62	11.40	1 15/16	...	9/16	3	5/8	1 5/16	P1	11.3	14	4TB62	14.60	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	18.5
6.0	6.4	6.76	4 7/8	14	3TB64	11.80	1 15/16	...	9/16	3	5/8	1 5/16	P1	11.3	14	4TB64	15.10	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	20.5
6.2	6.6	6.96	5 1/16	14	3TB66	12.10	1 15/16	...	9/16	3	5/8	1 5/16	P1	11.7	14	4TB66	15.60	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	20.8
6.4	6.8	7.16	5 5/16	14	3TB68	12.50	1 15/16	...	9/16	3	5/8	1 5/16	P1	12.1	14	4TB68	16.10	1 15/16	...	1 5/16	3	5/8	1 5/16	P1	22.5
6.6	7.0	7.36	5 1/2	13	3TB70	12.80	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	16.6	14	4TB70	16.30	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	24.2
7.0	7.4	7.76	5 15/16	13	3TB74	13.50	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	16.8	14	4TB74	17.30	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	23.5
7.6	8.0	8.36	6 1/2	13	3TB80	14.00	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	19.0	14	4TB80	17.90	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	25.5
8.2	8.6	8.96	7 1/16	18	3TB86	15.30	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	22.1	19	4TB86	19.00	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	30.3
8.6	9.0	9.36	7 1/2	18	3TB90	15.50	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	21.5	19	4TB90	19.20	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	30.3
9.0	9.4	9.76	7 15/16	18	3TB94	16.20	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	21.6	19	4TB94	20.10	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	31.5
10.6	11.0	11.36	9 7/16	18	3TB110	18.80	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	26.5	19	4TB110	22.50	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	38.0
12.0	12.4	12.76	10 15/16	18	3TB124	20.20	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	30.0	19	4TB124	24.70	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	40.0
13.2	13.6	13.96	12 1/16	18	3TB136	21.80	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	32.1	19	4TB136	26.00	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	39.5
15.0	15.4	15.76	13 15/16	18	3TB154	24.70	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	35.2	19	4TB154	29.60	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	50.0
18.0	18.4	18.76	16 15/16	18	3TB184	29.60	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	42.1	19	4TB184	35.90	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	56.2
19.5	20.0	20.36	18 1/2	18	3TB200	43.90	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	50.0	19	4TB200	49.70	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	64.0
24.5	25.0	25.36	23 1/2	18	3TB250	52.40	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	64.0	19	4TB250	60.20	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	80.0
29.5	30.0	30.36	28 1/2	18	3TB300	61.40	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	86.0	19	4TB300	72.50	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	124.0
37.5	38.0	38.36	36 1/2	18	3TB380	77.90	2 1/2	3/8	3/8	4 1/8	3/4	1 3/4	Q1	104.0	19	4TB380	90.70	2 1/2	...	3/4	4 1/8	3/4	1 3/4	Q1	172.0

Diameter, Inches				5 Grooves, F-4 Inches											6 Grooves, F-4¾ Inches										
Pitch							Dimensions, Inches											Dimensions, Inches							
A	B	Outside	Inside	Type	No.	Each	L	P	C	H	G	X	Bushing	Wt. Lb.	Type	No.	Each	L	*P	C	H	G	X	Bushing	Wt. Lb.
3.0	3.4	3.76	2	3	5TB34	$11.60	2 15/16	1 1/16	2 1/8	3	5/8	2 5/16	P2	6.0	3	6TB34	$13.40	2 15/16	1 1/16	2 7/8	3	5/8	2 5/16	P2	7.3
3.2	3.6	3.96	2 1/16	3	5TB36	11.80	2 15/16	1 1/16	2 1/8	3	5/8	2 5/16	P2	6.7	3	6TB36	13.60	2 15/16	1 1/16	2 7/8	3	5/8	2 5/16	P2	8.5
3.4	3.8	4.16	2 5/16	5	5TB38	12.00	2 15/16	5/8	1 11/16	3	..	2 5/16	P2	6.2	5	6TB38	13.80	2 15/16	5/8	2 7/16	3	..	2 5/16	P2	8.3
3.6	4.0	4.36	2 1/2	5	5TB40	12.20	2 15/16	5/8	1 11/16	3	..	2 5/16	P2	6.7	5	6TB40	14.00	2 15/16	5/8	2 7/16	3	..	2 5/16	P2	9.2
3.8	4.2	4.56	2 11/16	5	5TB42	12.40	2 15/16	5/8	1 11/16	3	..	2 5/16	P2	7.3	5	6TB42	14.30	2 15/16	5/8	2 7/16	3	..	2 5/16	P2	10.5
4.0	4.4	4.76	2 7/8	8	5TB44	12.60	2 15/16	...	1 1/16	3	5/8	2 5/16	P2	7.5	8	6TB44	14.50	2 15/16	..	1 13/16	3	5/8	2 5/16	P2	11.2
4.2	4.6	4.96	3 1/16	8	5TB46	12.90	2 15/16	...	1 1/16	3	5/8	2 5/16	P2	8.8	8	6TB46	14.80	2 15/16	..	1 13/16	3	5/8	2 5/16	P2	12.2
4.4	4.8	5.16	3 5/16	8	5TB48	13.20	2 15/16	...	1 1/16	3	5/8	2 5/16	P2	9.2	8	6TB48	15.20	2 15/16	..	1 13/16	3	5/8	2 5/16	P2	12.5
4.6	5.0	5.36	3 1/2	8	5TB50	13.50	2 15/16	...	1 1/16	3	5/8	2 5/16	P2	9.9	8	6TB50	15.60	2 15/16	..	1 13/16	3	5/8	2 5/16	P2	14.5
4.8	5.2	5.56	3 11/16	8	5TB52	13.80	2 15/16	...	1 1/16	3	5/8	2 5/16	P2	11.3	8	6TB52	16.10	2 15/16	..	1 13/16	3	5/8	2 5/16	P2	16.3
5.0	5.4	5.76	3 7/8	8	5TB54	14.20	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	11.3	8	6TB54	16.60	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	16.0
5.2	5.6	5.96	4 1/16	8	5TB56	14.50	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	12.1	8	6TB56	17.10	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	16.5
5.4	5.8	6.16	4 5/16	8	5TB58	15.00	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	12.8	8	6TB58	17.60	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	18.2
5.6	6.0	6.36	4 1/2	8	5TB60	15.50	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	14.1	8	6TB60	18.10	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	19.2
5.8	6.2	6.56	4 11/16	8	5TB62	15.90	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	12.7	8	6TB62	18.50	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	20.5
6.0	6.4	6.76	4 7/8	8	5TB64	16.30	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	12.8	8	6TB64	19.10	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	22.7
6.2	6.6	6.96	5 1/16	8	5TB66	16.70	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	14.3	8	6TB66	19.60	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	22.5
6.4	6.8	7.16	5 5/16	8	5TB68	17.20	2 1/2	...	1 1/2	4 1/8	3/4	1 3/4	Q1	14.0	8	6TB68	20.10	2 1/2	..	2 1/4	4 1/8	3/4	1 3/4	Q1	25.2
6.6	7.0	7.36	5 1/2	13	5TB70	19.00	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	18.9	15	6TB70	24.00	3 1/2	1/4U	1	4 1/8	3/4	2 3/4	Q2	26.7
7.0	7.4	7.76	5 15/16	13	5TB74	23.00	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	19.4	15	6TB74	31.10	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	25.1
7.6	8.0	8.36	6 1/2	13	5TB80	23.40	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	21.0	15	6TB80	31.70	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	28.2
8.2	8.6	8.96	7 1/16	18	5TB86	24.80	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	25.0	20	6TB86	33.30	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	34.0
8.6	9.0	9.36	7 1/2	18	5TB90	25.00	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	24.5	20	6TB90	33.50	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	33.8
9.0	9.4	9.76	7 15/16	18	5TB94	25.90	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	25.2	20	6TB94	34.60	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	34.0
10.6	11.0	11.36	9 7/16	18	5TB110	28.30	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	29.9	20	6TB110	37.40	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	40.5
12.0	12.4	12.76	10 15/16	18	5TB124	30.20	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	33.0	20	6TB124	39.10	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	43.5
13.2	13.6	13.96	12 1/16	18	5TB136	31.90	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	37.0	20	6TB136	39.90	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	50.0
15.0	15.4	15.76	13 15/16	18	5TB154	35.20	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	39.9	20	6TB154	42.60	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	55.0
18.0	18.4	18.76	16 15/16	18	5TB184	40.30	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	50.9	20	6TB184	48.30	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	63.5
19.5	20.0	20.36	18 1/2	18	5TB200	56.60	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	56.0	20	6TB200	63.80	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	78.0
24.5	25.0	25.36	23 1/2	18	5TB250	67.90	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	72.0	20	6TB250	77.70	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	88.0
29.5	30.0	30.36	28 1/2	18	5TB300	82.70	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	96.0	20	6TB300	92.50	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	132.0
37.5	38.0	38.36	36 1/2	18	5TB380	103.40	3 1/2	1/8	5/8	4 1/8	3/4	2 3/4	Q2	136.0	20	6TB380	115.60	3 1/2	1/4 U	1	4 1/8	3/4	2 3/4	Q2	186.0

* Dimensions followed by U indicate that flange end of bushing is under rim by amount shown.

No. 82 Diamond ⅜-Inch Pitch Single Strand Chain and Sprockets

(American Standard No. 35)



Chain, Riveted Type	per foot	$.90
Connecting Links	each	.14
Bushing Links	each	.10
One-Pitch Offset Links	each	.32
Two-Pitch Offset Links	each	.32
Pitch	inches	⅜
Bushing Width	inches	3/16
Inside Linkplate Height	inches	.344
Weight per Foot	pounds	21
Average Tensile Strength	pounds	2100

Finished-Bore Stock Sprockets

No.	No. Teeth	Pitch Diameter Inches	Stock Bores Inches (Complete with Keyway and Set-Screw)	Avail. Plain Bore for Reboring In.
35B9T	9	1.096	⅜	⅜
35B10T	10	1.214	⅜, ½	⅜
35B11T	11	1.331	⅜, ½	⅜
35B12T	12	1.449	.. ½, ⅝	½
35B13T	13	1.567	.. ½, ⅝, ¾ ..	½
35B14T	14	1.685	.. ½, ⅝, ¾ ..	½
35B15T	15	1.804	.. ½, ⅝, ¾ ..	½
35B16T	16	1.922	.. ½, ⅝, ¾ ..	½
35B17T	17	2.041	.. ½, ⅝, ¾, 1	½
35B18T	18	2.159	.. ½, ⅝, ¾, 1	½
35B19T	19	2.278	.. .. ⅝, ¾, 1	½
35B20T	20	2.397	.. .. ⅝, ¾, 1	½
35B21T	21	2.516	.. .. ⅝, ¾, 1	½
35B22T	22	2.635	.. .. ⅝, ¾, 1	½
35B23T	23	2.754	.. .. ⅝, ¾, 1	½
35B24T	24	2.873	.. .. ⅝, ¾, 1	½
35B25T	25	2.992	.. .. ⅝, ¾, 1	½
35B26T	26	3.111	.. .. ⅝, ¾, 1	½
35B28T	28	3.349	.. .. ⅝, ¾, 1	½
35B30T	30	3.588	.. .. ⅝, ¾, 1	½
35B32T	32	3.826	.. .. ⅝, ¾, 1	½
35B35T	35	4.183	.. .. ⅝, ¾, 1	½
35B36T	36	4.303	.. .. ⅝, ¾, 1	½

Plain Bore Sprockets for Reboring

No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.	No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.
82B40	40	4.780	⅝	82B72	72	8.597	⅝
82B45	45	5.376	⅝	82B84	84	10.029	¾
82B48	48	5.734	⅝	82B96	96	11.461	¾
82B54	54	6.449	⅝	82B112	112	13.371	¾
82B60	60	7.165	⅝	......	...	......	..

Taper-Lock Bushed Stock Sprockets

No.	No. Teeth	Pitch Diameter Inches	Use with Bushing No.	Stock Bores Increments of 1/16 In. Min.	Max.
35B40T	40	4.780	1610	½	1⅝
35B45T	45	5.376	1610	½	1⅝
35B48T	48	5.734	1610	½	1⅝
35B54T	54	6.449	1610	½	1⅝
35B60T	60	7.165	1610	½	1⅝
35B72T	72	8.597	1610	½	1⅝
35B84T	84	10.029	1610	½	1⅝
35B96T	96	11.461	1610	½	1⅝
35B112T	112	13.371	1610	½	1⅝

No. 1610 Taper-Lock Bushings

Bores...in.	½–9/16	⅝–⅞	15/16–1¼	1 5/16–1⅜	1 7/16–1½	1 9/16–1⅝
Keyway.in.	⅛x1/16	3/16x3/32	¼x⅛	5/16x5/32	⅜x3/16	*⅜x⅛

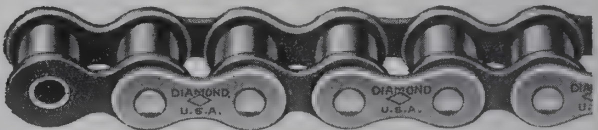
*Special flat keys are included at no additional cost to accommodate shallow keyway in bushing.

Diameter over chain on sprocket is pitch diameter plus inside linkplate height of chain.

Complete Specifications and Further Information on Request

No. 66 Diamond ½-Inch Pitch Single Strand Chain and Sprockets

(American Standard No. 40)



Chain, Riveted Type	per foot	$1.15
Connecting Links	each	.14
Roller Links	each	.10
One-Pitch Offset Links	each	.40
Two-Pitch Offset Links	each	.50
Pitch	inches	½
Roller Width	inches	5/16
Inside Linkplate Height	inches	.452
Weight per Foot	pounds	41
Average Tensile Strength	pounds	3700

Finished-Bore Stock Sprockets

No.	No. Teeth	Pitch Diam. In.	Stock Bores, Inches (Complete with Keyway and Set-Screw)	Avail. Plain Bore for Reboring In.
40B9T	9	1.462	½, ⅝	½
40B10T	10	1.618	½, ⅝, ¾	½
40B11T	11	1.775	.. ⅝, ¾, ⅞	⅝
40B12T	12	1.932	.. ⅝, ¾, ⅞, 1	⅝
40B13T	13	2.089	.. ⅝, ¾, ⅞, 1	⅝
40B14T	14	2.247	.. ⅝, ¾, ⅞, 1	⅝
40B15T	15	2.405	.. ⅝, ¾, ⅞, 1, 1⅛, 1 3/16, 1¼	⅝
40B16T	16	2.563	.. ⅝, ¾, ⅞, 1 ... 1 3/16, 1¼	⅝
40B17T	17	2.721	.. ⅝, ¾, ⅞, 1, 1⅛	⅝
40B18T	18	2.879	.. .. ¾, ⅞, 1, 1⅛, 1 3/16 ... 1 7/16, 1½	⅝
40B19T	19	3.038	.. .. ¾ .. 1 ... 1 3/16 ... 1 7/16 ...	⅝
40B20T	20	3.196	.. .. ¾, ⅞, 1, 1⅛, 1 3/16, 1¼, 1 7/16, 1½	⅝
40B21T	21	3.355	.. .. .. ⅞, 1 ... 1 3/16 ... 1 7/16, 1½	⅝
40B22T	22	3.513	.. .. ¾ .. 1, 1⅛, 1 3/16, 1¼, 1 7/16 ...	⅝
40B23T	23	3.672	.. .. ¾ .. 1 ... 1 3/16, 1¼, 1 7/16 ...	⅝
40B24T	24	3.831	.. .. ¾ .. 1, 1⅛, 1 3/16, 1¼, 1 7/16, 1½	⅝

Plain Bore Sprockets for Reboring

No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.	No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.
66B25	25	3.989	¾	66B45	45	7.168	1
66B26	26	4.148	¾	66B48	48	7.645	1
66B30	30	4.783	¾	66B54	54	8.599	1
66B32	32	5.101	¾	66B60	60	9.554	1
66B35	35	5.578	1	66B72	72	11.463	1
66B36	36	5.737	1	66B84	84	13.372	1
66B40	40	6.373	1	66B96	96	15.281	1
66B42	42	6.691	1	......	..	......	..

Taper-Lock Bushed Stock Sprockets

No.	No. Teeth	Pitch Diam. In.	Use with Bushing No.	Stock Bores Increments of 1/16 In. Min.	Max.	No.	No. Teeth	Pitch Diam. In.	Use with Bushing No.	Stock Bores Increments of 1/16 In. Min.	Max.
40B25T	25	3.989	1610	½	1⅝	40B48T	48	7.645	1610	½	1⅝
40B26T	26	4.148	1610	½	1⅝	40B54T	54	8.599	1610	½	1⅝
40B28T	28	4.466	1610	½	1⅝	40B60T	60	9.554	1610	½	1⅝
40B30T	30	4.783	1610	½	1⅝	40B70T	70	11.145	2012	½	2
40B32T	32	5.101	1610	½	1⅝	40B72T	72	11.463	2012	½	2
40B35T	35	5.578	1610	½	1⅝	40B80T	80	12.736	2012	½	2
40B36T	36	5.737	1610	½	1⅝	40B84T	84	13.372	2012	½	2
40B40T	40	6.373	1610	½	1⅝	40B96T	96	15.281	2012	½	2
40B42T	42	6.691	1610	½	1⅝	40B112T	112	17.828	2012	½	2
40B45T	45	7.168	1610	½	1⅝	....	...	......	....	..	...

Taper-Lock Bushings

No.	Bores Inches	Keyway Size Inches	No.	Bores Inches	Keyway Size Inches
1610	½–9/16	⅛x1/16	2012	½–9/16	⅛x1/16
1610	⅝–⅞	3/16x3/32	2012	⅝–⅞	3/16x3/32
1610	15/16–1¼	¼x⅛	2012	15/16–1¼	¼x⅛
1610	1 5/16–1⅜	5/16x5/32	2012	1 5/16–1⅜	5/16x5/32
1610	1 7/16–1½	⅜x3/16	2012	1 7/16–1¾	⅜x3/16
1610	1 9/16–1⅝	*⅜x⅛	2012	1 13/16–1⅞	½x¼
....	....	......	2012	1 15/16–2	*½x⅛

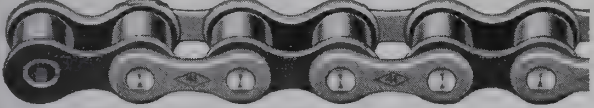
*Special flat keys are included at no additional cost to accommodate shallow keyway in bushing.

Diameter over chain on sprocket is pitch diameter plus inside linkplate height of chain.

Complete Specifications and Further Information on Request

No. 41 Diamond ½-Inch Pitch Single Strand Chain and Sprockets

(American Standard No. 41)



Chain, Riveted Type	per foot	$.64
Connecting Links	each	.08
Roller Links	each	.08
One-Pitch Offset Links	each	.32
Two-Pitch Offset Links	each	.32
Pitch	inches	½
Roller Width	inches	¼
Inside Linkplate Height	inches	.383
Weight per Foot	pounds	26
Average Tensile Strength	pounds	2000

Finished-Bore Stock Sprockets

No.	No. Teeth	Pitch Diameter Inches	Stock Bores, Inches (Complete with Keyway and Set-Screw)	Avail. Plain Bore for Reboring In.
41B9T	9	1.462	½, ⅝, ...	½
41B10T	10	1.618	½, ⅝, ¾ ..	½
41B11T	11	1.775	½, ⅝, ¾ ..	½
41B12T	12	1.932	½, ⅝, ¾ ..	½
41B13T	13	2.089	½, ⅝, ¾, 1	½
41B14T	14	2.247	½, ⅝, ¾, 1	½
41B15T	15	2.405	½, ⅝, ¾, 1	½
41B16T	16	2.563	.. ⅝, ¾, 1	⅝
41B17T	17	2.721	.. ⅝, ¾, 1	⅝
41B18T	18	2.879	.. ⅝, ¾, 1	⅝
41B19T	19	3.038	.. .. ¾, 1	⅝
41B20T	20	3.196	.. .. ¾, 1	⅝
41B21T	21	3.355	.. .. ¾, 1	⅝
41B22T	22	3.513	.. .. ¾, 1	⅝
41B23T	23	3.672	.. .. ¾, 1	⅝
41B24T	24	3.831	.. .. ¾, 1	⅝

Plain Bore Sprockets for Reboring

No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.	No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.
41B25	25	3.989	⅝	**41B40**	40	6.373	¾
41B26	26	4.148	⅝	**41B45**	45	7.168	¾
41B27	27	4.307	⅝	**41B48**	48	7.645	¾
41B28	28	4.466	⅝	**41B54**	54	8.599	¾
41B30	30	4.783	⅝	**41B60**	60	9.554	1
41B32	32	5.101	⅝	**41B72**	72	11.463	1
41B35	35	5.578	¾	**41B84**	84	13.372	1
41B36	36	5.737	¾	**41B96**	96	15.281	1

Taper-Lock Bushed Stock Sprockets

			Use with Bushing	Stock Bores Increments of 1/16 In.					Use with Bushing	Stock Bores Increments of 1/16 In.	
No.	No. Teeth	Pitch Diam. In.	No.	Min.	Max.	No.	No. Teeth	Pitch Diam. In.	No.	Min.	Max.
41B25T	25	3.989	**1610**	½	1⅝	**41B45T**	45	7.168	**1610**	½	1⅝
41B26T	26	4.148	**1610**	½	1⅝	**41B48T**	48	7.645	**1610**	½	1⅝
41B28T	28	4.466	**1610**	½	1⅝	**41B54T**	54	8.599	**1610**	½	1⅝
41B30T	30	4.783	**1610**	½	1⅝	**41B60T**	60	9.554	**1610**	½	1⅝
41B32T	32	5.101	**1610**	½	1⅝	**41B72T**	72	11.463	**1610**	½	1⅝
41B35T	35	5.578	**1610**	½	1⅝	**41B84T**	84	13.372	**1610**	½	1⅝
41B36T	36	5.737	**1610**	½	1⅝	**41B96T**	96	15.281	**1610**	½	1⅝
41B40T	40	6.373	**1610**	½	1⅝	....	..	......	....	..	...

No. 1610 Taper-Lock Bushings

Bores...in.	**½–9/16**	**⅝–⅞**	**15/16–1¼**	**1 5/16–1⅜**	**1 7/16–1½**	**1 9/16–1⅝**
Keyway.in.	⅛x1/16	3/16x3/32	¼x⅛	5/16x5/32	⅜x3/16	*⅜x⅛

*Special flat keys are included at no additional cost to accommodate shallow keyway in bushing.

Diameter over chain on sprocket is pitch diameter plus inside linkplate height of chain.

Complete Specifications and Further Information on Request

No. 449 Diamond ⅝-Inch Pitch Single Strand Chain and Sprockets

(American Standard No. 50)

Chain, Riveted Type	per foot	$1.40
Connecting Links	each	.16
Roller Links	each	.12
One-Pitch Offset Links	each	.46
Two-Pitch Offset Links	each	.58
Pitch	inches	⅝
Roller Width	inches	⅜
Inside Linkplate Height	inches	.570
Weight per Foot	pounds	.68
Average Tensile Strength	pounds	6100

Finished Bore Stock Sprockets

No.	No. Teeth	Pitch Diam. In.	Stock Bores, Inches (Complete with Keyway and Set-Screw)	Avail. Plain Bore for Reboring In.
50B9T	9	1.827	⅝, ¾	⅝
50B10T	10	2.023	⅝, ¾	⅝
50B11T	11	2.219	⅝, ¾, ⅞, 1	⅝
50B12T	12	2.415	⅝, ¾, ⅞, 1, 1⅛	⅝
50B13T	13	2.612	.. ¾, ⅞, 1, 1⅛, 1 3/16, 1¼	⅝
50B14T	14	2.809	.. ¾, ⅞, 1, 1⅛, 1 3/16, 1¼	⅝
50B15T	15	3.006	.. ¾, ⅞, 1, 1⅛, 1 3/16, 1¼, 1⅜, 1 7/16 ...	⅝
50B16T	16	3.204	.. ¾, ⅞, 1, 1⅛, 1 3/16, 1¼, 1⅜, 1 7/16, 1½	⅝
50B17T	17	3.401	.. ¾ .. 1, 1⅛, 1 3/16, 1¼, 1⅜, 1 7/16 ...	⅝
50B18T	18	3.599	.. ¾, ⅞, 1 ... 1 3/16, 1¼, 1⅜, 1 7/16, 1½	⅝
50B19T	19	3.797	.. .. .. 1, 1⅛, 1 3/16, 1¼, 1⅜, 1 7/16, 1½	¾
50B20T	20	3.995	.. .. ⅞, 1 ... 1 3/16, 1¼, 1⅜, 1 7/16, 1½	¾

Plain Bore Sprockets for Reboring

No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.	No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.
449B21	21	4.194	1	**449B36**	36	7.171	1
449B22	22	4.392	1	**449B40**	40	7.966	1
449B23	23	4.590	1	**449B42**	42	8.363	1
449B24	24	4.788	1	**449B45**	45	8.960	1
449B25	25	4.987	1	**449B48**	48	9.556	1
449B26	26	5.185	1	**449B54**	54	10.749	1
449B30	30	5.979	1	**449B60**	60	11.942	1
449B32	32	6.376	1	**449B72**	72	14.329	1

Taper-Lock Bushed Stock Sprockets

			Use with Bushing	Stock Bores Increments of 1/16 In.					Use with Bushing	Stock Bores Increments of 1/16 In.	
No.	No. Teeth	Pitch Diam. In.	No.	Min.	Max.	No.	No. Teeth	Pitch Diam. In.	No.	Min.	Max.
50B21T	21	4.194	1610	½	1⅝	**50B42T**	42	8.363	2012	½	2
50B22T	22	4.392	1610	½	1⅝	**50B45T**	45	8.960	2012	½	2
50B23T	23	4.590	2012	½	2	**50B48T**	48	9.556	2012	½	2
50B24T	24	4.788	2012	½	2	**50B54T**	54	10.749	2012	½	2
50B25T	25	4.987	2012	½	2	**50B60T**	60	11.942	2012	½	2
50B26T	26	5.185	2012	½	2	**50B70T**	70	13.931	2517	½	2½
50B28T	28	5.582	2012	½	2	**50B72T**	72	14.329	2517	½	2½
50B30T	30	5.979	2012	½	2	**50B80T**	80	15.920	2517	½	2½
50B32T	32	6.376	2012	½	2	**50B84T**	84	16.715	2517	½	2½
50B35T	35	6.972	2012	½	2	**50B96T**	96	19.102	2517	½	2½
50B36T	36	7.171	2012	½	2	**50B112T**	112	22.285	2517	½	2½
50B40T	40	7.966	2012	½	2	....	...	....	....	..	...

Taper-Lock Bushings

No.	Bores Inches	Keyway Inches	No.	Bores Inches	Keyway Inches
1610	½–9/16	⅛x1/16	**2012**	1 7/16–1¾	⅜x3/16
1610	⅝–⅞	3/16x3/32	**2012**	1 13/16–1⅞	½x¼
1610	15/16–1¼	¼x⅛	**2012**	1 15/16–2	*½x3/16
1610	1 5/16–1⅜	5/16x5/32	**2517**	½–9/16	⅛x1/16
1610	1 7/16–1½	⅜x3/16	**2517**	⅝–⅞	3/16x3/32
1610	1 9/16–1⅝	*⅜x⅛	**2517**	15/16–1¼	¼x⅛
2012	½–9/16	⅛x1/16	**2517**	1 5/16–1⅜	5/16x5/32
2012	⅝–⅞	3/16x3/32	**2517**	1 7/16–1¾	⅜x3/16
2012	15/16–1¼	¼x⅛	**2517**	1 13/16–2¼	½x¼
2012	1 5/16–1⅜	5/16x5/32	**2517**	2 5/16–2½	*⅝x3/16

*Special flat keys are included at no additional cost to accommodate shallow keyway in bushing.

Diameter over chain on sprocket is pitch diameter plus inside linkplate height of chain.

Complete Specifications and Further Information on Request

No. 433 Diamond 3/4-Inch Pitch Single Strand Chain and Sprockets

(American Standard No. 60)

Chain, Riveted Type	per foot	$1.80
Chain, Cotter Pin Type	per foot	2.20
Connecting Links	each	.20
Roller Links	each	.16
One-Pitch Offset Links	each	.58
Two-Pitch Offset Links	each	.74
Pitch	inches	3/4
Roller Width	inches	1/2
Inside Linkplate Height	inches	.679
Weight per Foot	pounds	.99
Average Tensile Strength	pounds	8400

Finished-Bore Stock Sprockets

No.	No. Teeth	Pitch Diam. In.	Stock Bores, Inches (Complete with Keyway and Set-Screw)	Avail. Plain Bore for Reboring In.
60B9T	9	2.193	3/4	3/4
60B10T	10	2.427	3/4, 1	3/4
60B11T	11	2.662	3/4, 1 ... ... 1 1/4	3/4
60B12T	12	2.898	3/4, 1, 1 1/8, 1 3/16, 1 1/4	3/4
60B13T	13	3.134	3/4, 1, 1 1/8, 1 3/16, 1 1/4, 1 3/8, 1 7/16, 1 1/2	3/4
60B14T	14	3.371	3/4, 1 ... 1 3/16, 1 1/4, 1 3/8, 1 7/16, 1 1/2	3/4
60B15T	15	3.607	.. 1 ... 1 3/16, 1 1/4, 1 3/8, 1 7/16, 1 1/2, 1 5/8, 1 3/4	3/4
60B16T	16	3.844	.. 1 ... 1 3/16, 1 1/4, 1 3/8, 1 7/16, 1 1/2, 1 5/8 ... 1 15/16	3/4

Plain Bore Sprockets for Reboring

No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.	No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.
433B17T	17	4.082	1	433B30T	30	7.175	1
433B18T	18	4.319	1	433B32T	32	7.652	1
433B19T	19	4.557	1	433B36T	36	8.605	1 3/16
433B20T	20	4.794	1	433B40T	40	9.559	1 3/16
433B21T	21	5.032	1	433B42T	42	10.036	1 3/16
433B22T	22	5.270	1	433B45T	45	10.752	1 3/16
433B23T	23	5.508	1	433B48T	48	11.467	1 3/16
433B24T	24	5.746	1	433B54T	54	12.899	1 7/16
433B25T	25	5.984	1	433B60T	60	14.331	1 7/16
433B26T	26	6.222	1	433B72T	72	17.194	1 7/16

Taper-Lock Bushed Stock Sprockets

No.	No. Teeth	Pitch Diam. In.	Use with Bushing No.	Stock Bores Increments of 1/16 In. Min.	Max.	No.	No. Teeth	Pitch Diam. In.	Use with Bushing No.	Stock Bores Increments of 1/16 In. Min.	Max.
60B17T	17	4.082	1610	1/2	1 5/8	60B35T	35	8.367	2012	1/2	2
60B18T	18	4.319	1610	1/2	1 5/8	60B36T	36	8.605	2012	1/2	2
60B19T	19	4.557	1610	1/2	1 5/8	60B40T	40	9.559	2012	1/2	2
60B20T	20	4.794	2012	1/2	2	60B42T	42	10.036	2012	1/2	2
60B21T	21	5.032	2012	1/2	2	60B45T	45	10.752	2012	1/2	2
60B22T	22	5.270	2012	1/2	2	60B48T	48	11.467	2012	1/2	2
60B23T	23	5.508	2012	1/2	2	60B54T	54	12.899	2517	1/2	2 1/2
60B24T	24	5.746	2012	1/2	2	60B60T	60	14.331	2517	1/2	2 1/2
60B25T	25	5.984	2012	1/2	2	60B70T	70	16.717	2517	1/2	2 1/2
60B26T	26	6.222	2012	1/2	2	60B72T	72	17.194	2517	1/2	2 1/2
60B28T	28	6.699	2012	1/2	2	60B80T	80	19.103	2517	1/2	2 1/2
60B30T	30	7.175	2012	1/2	2	60B84T	84	20.058	2517	1/2	2 1/2
60B32T	32	7.652	2012	1/2	2						

Taper-Lock Bushings

No.	Bores Inches	Keyway Inches	No.	Bores Inches	Keyway Inches
1610	1/2–9/16	1/8x1/16	2012	1 7/16–1 3/4	3/8x3/16
1610	5/8–7/8	3/16x3/32	2012	1 13/16–1 7/8	1/2x 1/4
1610	15/16–1 1/4	1/4x 1/8	2012	1 15/16–2	*1/2x 1/8
1610	1 5/16–1 3/8	5/16x5/32	2517	1/2–9/16	1/8x1/16
1610	1 7/16–1 1/2	3/8x3/16	2517	5/8x 7/8	3/16x3/32
1610	1 9/16–1 5/8	*3/8x 1/8	2517	15/16–1 1/4	1/4x 1/8
2012	1/2–9/16	1/8x1/16	2517	1 5/16–1 3/8	5/16x5/32
2012	5/8–7/8	3/16x3/32	2517	1 7/16–1 3/4	3/8x3/16
2012	15/16–1 1/4	1/4x 1/8	2517	1 13/16–2 1/4	1/2x 1/4
2012	1 5/16–1 3/8	5/16x5/32	2517	2 5/16–2 1/2	*5/8x5/16

*Special flat keys are included at no additional cost to accommodate shallow keyway in bushing.

Diameter over chain on sprocket is pitch diameter plus inside linkplate height of chain.

Complete Specifications and Further Information on Request

No. 434 Diamond 1-Inch Pitch Single Strand Chain and Sprockets

(American Standard No. 80)

Chain, Riveted Type	per foot	$2.96
Chain, Cotter Pin Type	per foot	3.36
Connecting Links	each	.32
Roller Links	each	.40
One-Pitch Offset Links	each	1.00
Two-Pitch Offset Links	each	1.40
Pitch	inches	1
Roller Width	inches	5/8
Inside Linkplate Height	inches	.903
Weight per Foot	pounds	1.73
Average Tensile Strength	pounds	14000

Finished-Bore Stock Sprockets

No.	No. Teeth	Pitch Diam. In.	Stock Bores, Inches (Complete with Keyway and Set-Screw)	Avail. Plain Bore for Reboring In.
80B9T	9	2.924	.. 1 3/16	1
80B10T	10	3.236	1, ... 1 1/4	1
80B11T	11	3.550	.. 1 3/16, 1 1/4, 1 7/16, 1 1/2, 1 5/8	1
80B12T	12	3.864	..... 1 1/4, 1 7/16, 1 1/2 ... 1 3/4	1
80B13T	13	4.179	..... 1 1/4, 1 7/16, 1 1/2, 1 5/8, 1 3/4, 1 15/16, 2	1
80B14T	14	4.494	..... 1 1/4, 1 7/16, 1 1/2, 1 5/8, 1 3/4, 1 15/16 .. 2 3/16	1
80B15T	15	4.810	..... 1 1/4, 1 7/16, 1 1/2, 1 5/8, 1 3/4, 1 15/16, 2	1

Plain Bore Sprockets for Reboring

No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.	No.	No. Teeth	Pitch Diam. In.	Plain Bore for Reboring In.
434B16T	16	5.126	1	434B26T	26	8.296	1 7/16
434B17T	17	5.442	1	434B30T	30	9.567	1 7/16
434B18T	18	5.759	1 3/16	434B32T	32	10.202	1 7/16
434B19T	19	6.076	1 3/16	434B36T	36	11.474	1 7/16
434B20T	20	6.392	1 3/16	434B40T	40	12.746	1 7/16
434B21T	21	6.710	1 3/16	434B45T	45	14.336	1 7/16
434B22T	22	7.027	1 3/16	434B48T	48	15.290	1 7/16
434B23T	23	7.344	1 3/16	434B54T	54	17.198	1 7/16
434B24T	24	7.661	1 3/16				

Taper-Lock Bushed Stock Sprockets

No.	No. Teeth	Pitch Diam. In.	Use with Bushing No.	Stock Bores Increments of 1/16 In. Min.	Max.	No.	No. Teeth	Pitch Diam. In.	Use with Bushing No.	Stock Bores Increments of 1/16 In. Min.	Max.
80B16T	16	5.126	2012	1/2	2	80B30T	30	9.567	2517	1/2	2 1/2
80B17T	17	5.442	2012	1/2	2	80B32T	32	10.202	2517	1/2	2 1/2
80B18T	18	5.769	2012	1/2	2	80B36T	36	11.474	2517	1/2	2 1/2
80B19T	19	6.076	2012	1/2	2	80B40T	40	12.746	2517	1/2	2 1/2
80B20T	20	6.392	2517	1/2	2 1/2	80B45T	45	14.336	2517	1/2	2 1/2
80B21T	21	6.710	2517	1/2	2 1/2	80B48T	48	15.290	2517	1/2	2 1/2
80B22T	22	7.027	2517	1/2	2 1/2	80B54T	54	17.198	2517	1/2	2 1/2
80B23T	23	7.344	2517	1/2	2 1/2	80B60T	60	19.107	2517	1/2	2 1/2
80B24T	24	7.661	2517	1/2	2 1/2	80B70T	72	22.289	3020	15/16	3
80B26T	26	8.296	2517	1/2	2 1/2	80B80T	80	25.471	3020	15/16	3

Taper-Lock Bushings

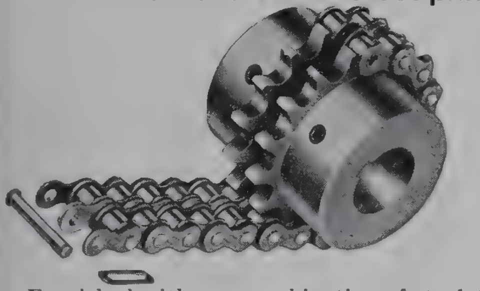
No.	Bores Inches	Keyway Inches	No.	Bores Inches	Keyway Inches
2012	1/2–9/16	1/8x1/16	2517	1 5/16–1 3/8	5/16x5/32
2012	5/8–7/8	3/16x3/32	2517	1 7/16–1 3/4	3/8x3/16
2012	15/16–1 1/4	1/4x 1/8	2517	1 13/16–2 1/4	1/2x 1/4
2012	1 5/16–1 3/8	5/16x5/32	2517	2 5/16–2 1/2	*5/8x3/16
2012	1 7/16–1 3/4	3/8x3/16	3020	15/16–1 1/4	1/4x 1/8
2012	1 13/16–1 7/8	1/2x 1/4	3020	1 5/16–1 3/8	5/16x5/32
2012	1 15/16–2	*1/2x 1/8	3020	1 7/16–1 3/4	3/8x3/16
2517	1/2–9/16	1/8x1/16	3020	1 13/16–2 1/4	1/2x 1/4
2517	5/8–7/8	3/16x3/32	3020	2 5/16–2 3/4	5/8x5/16
2517	15/16–1 1/4	1/4x 1/8	3020	2 13/16–3	*3/4x 1/4

*Special flat keys are included at no additional cost to accommodate shallow keyway in bushing.

Diameter over chain on sprocket is pitch diameter plus inside linkplate height of chain.

Complete Specifications and Further Information on Request

Diamond Flexible Couplings



All steel two sprockets. Length of Diamond Double Roller Chain, increasing roller-sprocket bearing areas; permits boring for larger shafts.

Furnished with any combination of stock bores, or with one or both halves rebored to non-stock size, keyway and set-screw included. Couplings with non-standard size keyways priced as rebored couplings; special size extra. Hubs and bores not hardened. *Available without keyways.

No.	Max. Bore In.	With Stock Bore, Ea.	Reboring ½ Cplg. Each	Stock Bore Inches	Approx. Wt. Lb.
D4012	7/8	$8.20	$2.80	*7/16, 1/2, 5/8, 3/4	1.3
D4016	1 5/16	9.90	3.20	*5/8, 3/4, 7/8, 15/16, 1, 1 1/8, 1 1/4	2.5
D5016	1 11/16	13.50	4.00	*5/8, 3/4, 1, 1 1/8, 1 3/16, 1 1/4, 1 3/8, 1 7/16, 1 1/2, 1 5/8	5.0
D5018	2	18.20	4.00	*3/4, 1 1/4, 1 3/8, 1 7/16, 1 1/2, 1 5/8, 1 7/8, 1 15/16	7.3
D6018	2 7/16	22.40	4.80	*1, 1 7/16, 1 1/2, 1 5/8, 1 3/4, 1 7/8, 1 15/16, 2, 2 1/8, 2 3/8	10.5
D6020	2 3/4	29.30	4.80	*1 1/8, 1 3/4, 1 15/16, 2 1/8, 2 7/16, 2 3/8, 2 5/8	16.5
D3322	3	37.20	4.80	*1 1/8, 1 3/4, 1 15/16, 2 7/16, 2 3/8, 2 5/8, 2 7/8	19.0
D3418	3 1/8	45.00	4.80	*1 1/8, 1 15/16, 2, 2 1/8, 2 3/8, 2 7/16, 2 5/8, 2 7/8, 2 15/16	23.0
D3420	3 9/16	70.00	5.20	*1 1/2, 2 3/16, 2 7/16, 2 11/16, 2 15/16, 3 1/8, 3 3/8, 3 7/16	36.0
D7018	3 7/8	90.00	5.20	*1 1/2, 2 7/16, 2 15/16, 3 7/16	45.0
D10020	4 5/8	115.00	5.20	*2, 3 3/8, 3 7/16, 3 15/16	64.0
D7218	4 11/16	150.00	5.40	*2, 3 7/16, 3 15/16, 4 7/16	77.0
D7222	6 1/8	240.00	6.00	*2 1/2, 4 3/8, 4 7/16, 4 15/16	137.0

Diamond Revolving Casings

For Diamond Flexible Couplings

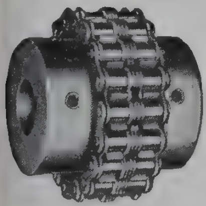
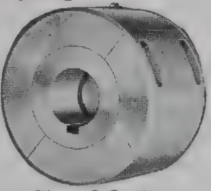


Illustration on left shows assembled Diamond Flexible Coupling.

Shown at right, is the coupling with Revolving Casing.



Type C Casing

A split type, machine-finished casing recommended for couplings that regularly are subjected to considerable angular misalignment or end play, or are exposed to dust or moisture.

One end is clamped solidly on ground hub of coupling. The other end has a seal which bears upon coupling hub and retains lubricant. Gaskets are provided between the machined surfaces of the two halves. Easily installed or taken off by removal of four clamping screws.

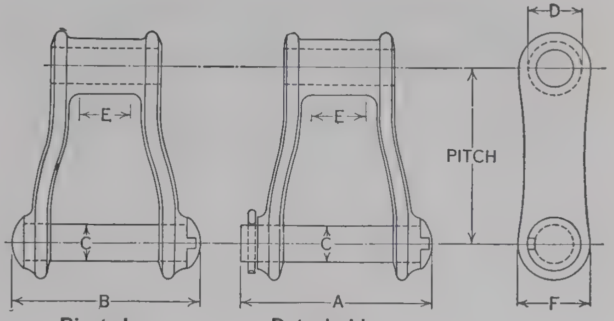
Casing should be filled with a light grease equal to No. 2 or No. 3 cup grease, or automotive pressure gun chassis lubricant. A Zerk fitting permits convenient filling of the casing with grease.

*No.	Each	Diameter Inches	Width Inches	Approx. Wt., Lb.
D4012A	$6.50	3	2 1/2	.5
D4016A	8.50	3 19/32	2 1/2	.6
D5016A	9.75	4 3/8	2 31/32	1.0
D5018A	11.00	4 13/16	3 3/8	1.1
D6018A	12.00	5 5/8	3 15/16	1.8
D6020A	13.50	6 1/8	4 1/6	1.9
D3322C	14.75	6 7/8	4 3/8	4.1
D3418C	16.00	7 1/2	5 1/8	5.5
D3420C	18.75	8 3/8	5 5/16	6.75
D7018C	20.50	9 3/8	5 15/16	9.75
D10020A	28.00	10	6	6.0
D7218C	32.00	11 3/8	7 3/8	16.25
D7222C	38.00	13 1/4	7 15/16	20.0

*Suffix A, A design; suffix C, C design.

Link-Belt 400 Class Pintle Chain

Malleable Iron



Riveted **Detachable**

Made both in riveted and detachable types.

Adapted for elevating, conveying, or power transmission work.

Rivets and pins are steel and are rolled smooth after forging; this compresses and trues up the original hard scale surface. Cored pin holes are cast smooth and clean by a special process. Combination of smooth and hard bearing surfaces materially increases durability of joint. Rivet or pin is prevented from rotating and working loose by having head notched at one side to engage with projection cast on side bar.

Specify type desired when ordering.

No.	Riveted per Ft.	Detachable per Ft.	Average Pitch In.	Approx. Links in 10 Feet	Average Ultimate Strength Lb.	Runs on Sprocket	Wt. Lb. per Ft.
442	....	....	1.375	88	6,000	42	1.4
445	....	....	1.630	74	6,000	45	1.5
452	....	....	1.506	80	7,000	52	2.0
455	....	....	1.630	74	7,300	45	1.9
462	....	....	1.634	73	9,000	62	2.5
477	....	....	2.308	52	9,600	77	2.0
483	....	....	4.000	30	15,000	83	2.9
488	....	....	2.609	46	11,000	88	2.9
4103	....	....	3.075	39	22,000	103	5.7
4124	....	....	4.063	30	33,000	124	8.5

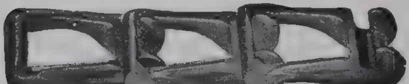
	Dimensions, Inches					
	Overall Width				Maximum Allowable	Height
	Detachable	Riveted	Diam. Pin	Diam. Barrel	Sprocket Face	Side Bar
No.	A	B	C	D	E	F
442	2	1 7/8	5/16	9/16	5/8	3/4
445	2	1 7/8	5/16	5/8	11/16	3/4
452	2 3/16	2 1/16	3/8	11/16	5/8	27/32
455	2 3/16	2 1/16	3/8	5/8	11/16	27/32
462	2 1/2	2 3/8	7/16	23/32	7/8	15/16
477	2 3/8	2 1/4	7/16	23/32	11/16	1
483	3 3/8	3 3/16	1/2	15/16	1 1/16	1 7/32
488	2 7/8	2 3/4	7/16	7/8	15/16	15/16
4103	3 1/2	3 1/4	3/4	1 1/4	1 1/8	1 1/2
4124	4 19/32	4 11/32	13/16	1 23/32	1 1/4	1 3/4

Rivets and Pins with Cotters

	Rivets		Pins with Cotters	
No.	Per 100	Wt. Lb. per 100	Per 100	Wt. Lb per 100
442	....	4.3	....	4.6
445	....	4.3	....	4.6
452	....	6.8	....	7.2
455	....	6.8	....	7.2
462	....	10.8	....	12.0
477	....	10.3	....	10.9
483	....	18.5	....	18.8
488	....	12.6	....	13.0
4103	....	44.0	....	48.0
4124	....	67.0	....	72.0

Cast Detachable Chain

Standard Stock Sizes

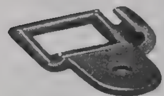


For light duty drive and conveyor service where speeds are low. Standard stock sizes will couple with corresponding sizes of other manufacture.

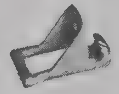
Chain No.	Plain per 100 Feet	*Couplers per 100	Approximate Links in. 10 ft.	Average Pitch Inches	Average Ultimate Strength Pounds	Max. Speed FPM. over 15 Tooth Sprocket
25	$37.80	$37.80	133	0.902	700	700
32	38.00	38.00	104	1.154	1100	700
34	39.00	39.00	86	1.398	1300	700
42	39.00	39.00	88	1.375	1600	700
45	37.30	37.30	74	1.630	1700	700
51	47.00	47.00	104	1.155	1900	700
52	45.00	45.00	80	1.506	2300	700
55	40.00	40.00	74	1.631	2300	700
57	46.60	47.00	52	2.308	2900	700
62	55.00	55.00	73	1.654	3200	700
67	56.70	56.70	52	2.308	3400	600
75	66.00	66.00	46	2.609	4100	600
77	65.00	65.00	52	2.297	3700	600
78	83.50	83.50	46	2.609	5000	600
88	93.80	93.80	46	2.609	6200	600
95	141.30	141.30	30	3.967	9000	500
103	136.60	136.60	39	3.075	10000	500
114	176.60	176.60	37	3.250	12000	500
124	195.90	195.90	30	4.063	17000	400

*Two pitches (links) per coupler.

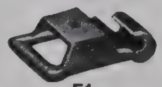
Attachments for Detachable Chain



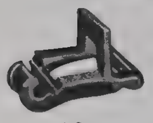
A1



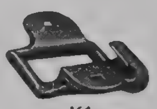
C1



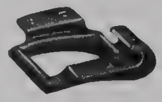
E1



F2



K1



K2

Attach. No.	Mall. Iron per 100 Ft.
No. 25	
*A-1	$70.40
*K-1	86.10
No. 32	
*A-1	$72.50
*C-1	92.40
*D-3	126.00
*K-1	87.20
No. 42	
*A-1	$78.80
*K-1	92.40
*S-1	94.50
No. 45	
*A-1	$68.90
*A-3	98.20
C-1	83.20
C-15	97.80
*D-3	137.40
E-1	62.00
F-2	96.00
G-27	113.40
*K-1	82.00
*K-45½	217.40
*S-1	87.20

Attach. No.	Mall. Iron per 100 Ft.
No. 51	
*K-1	$129.20
*K-5	142.80
*S-1	129.20
No. 52	
*A-1	$83.60
D-5	162.00
F-2	117.40
*K-1	100.60
*K-5	110.30
No. 55	
*A-1	$75.40
C-1	85.80
*E-1	72.50
F-2	104.90
G-27	121.80
*K-1	90.20
*K-45½	226.80
*S-1	97.60
*S-5	100.40
No. 57	
*A-1	$83.60
F-2	119.30
*K-1	99.00

Attach. No.	Mall. Iron per 100 Ft.
No. 62	
*A-1	$95.10
C-1	111.30
*D-5	148.10
G-27	144.90
*K-1	104.90
*K-5	117.40
No. 67	
F-2	$131.00
*K-1	119.40
No. 75	
F-2	$140.00
*K-1	135.00
No. 77	
*A-1	$104.50
*A-113	127.50
F-2	148.60
G-6	167.00
*K-1	139.70

Attach. No.	Mall. Iron per 100 Ft.
No. 78	
F-2	$156.30
*K-1	139.80
No. 88	
F-2	$193.70
H-2	244.00
*K-1	166.40
M-3	312.00
No. 95	
*K-2	$265.00
No. 103	
F-2	$244.30
G-19	313.60
*K-1	213.80
K-2	255.40
No. 114	
F-8	$344.60
No. 124	
F-8	$466.60

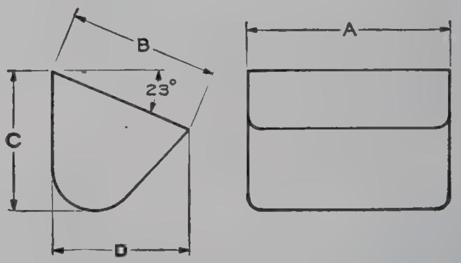
*These attachments can be coupled together consecutively.

Sprocket Wheels for Ewart Link-Belt

Link-Belt cast-tooth sprocket wheels are known for their accuracy and sound material. Molding and manufacturing processes assure a wheel that is basically correct in quality and workmanship, with hard close-grained smooth bearing surfaces to engage the chain.

Sprocket wheels are available in gray iron or Flint-Rim. All sizes of wheels can be furnished in gray iron but it is especially used for smaller chain sizes, for light loads and for operation with minimum abrasion. Flint-Rim sprockets resist abrasion and will last several times as long as gray iron wheels. Particularly suitable for handling material of a rough abrasive nature, such as cement clinker, crushed stone, phosphate, ashes, etc.

Salem Standard Steel Elevator Buckets



Used for handling all classes of materials in all lines of industries. Of one-piece construction and stamped from one piece of sheet metal with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials. There are no seams in front or on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

Has front cut to an angle of 23 degrees below horizontal when back is vertical. Bucket dimensions: A, overall length; B, projection as measured on the slant; C, depth and D, projection at right angles to back or belt.

Superior Elevator Cups

Style DP
Type B

Style OK
Type A

Complete information and specifications on request.

Behr-Manning Abrasive Cloths and Papers

Uses

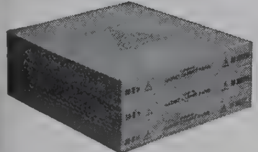
Garnet. For general woodworking.
Adalox. For production woodworking, excepting where used in sheets of C and D weight backing, when it may become a metal working sheet in the average metal plant.
Durite. For soft metals, for glass, tile brick, ceramics, leather, rubber, composition, and for sanding down paint coats in auto body work or machine tool work.
Flint. A general household product.
Metalite. For production metal working of all kinds.
Emery. For metal polishing work.
Speed-Wet Durite. Grinding, sanding, finishing, running and polishing on metals or other surfaces where water or some other lubricant is to be used.

Approximate Comparison of Grit Nos.

	Industrial		Shelf Products			Floor	
	Durate Metalite	Adalox Garnet	Emery		Flint		Resinized Speed Grits
Very Fine	600	....	....		....		....
	500	....	....		....		....
	400	400 (10/0)	....		....		....
	360	....	....		....		....
	320	320 (9/0)	....		....		....
	280	280 (8/0)	....		....		....
	240	240 (7/0)	....		....		....
	220	220 (6/0)	....		....		....
	...	....	Ex. Fine		....		....
Fine	180	180 (5/0)	....	Fine	3/0		....
	150	150 (4/0)	....		2/0		....
	120	120 (3/0)	Fine		...		....
Med.	...	....	....	Med.	0	Vry. Fine	....
	100	100 (2/0)	....		...		2/0 (100)
	...	....	....		½		....
	80	80 (0)	Medium		1	Fine	0 (80)
	...	....	....	Coarse	1½		....
	60	60 (½)	....		...		½ (60)
Coarse	...	....	....		2		....
	50	50 (1)	....		...		1 (50)
	...	....	Coarse	Very Coarse	...		....
	...	....	....		2½	Medium	....
	40	40 (1½)	....		...		1½ (40)
Very Coarse	36	36 (2)	....		...		2 (36)
	..	....	Ex. Crse.		...		....
	..	....	....		3		....
	30	30 (2½)	....		....		2½ (30)
	24	24 (3)	....		....	Coarse	3 (24)
	20	20 (3½)	....		....		3½ (20)
	16	16 (4)	....		....	Vry. Coarse	4 (16)
	12	....	....		....	Ex. Coarse	4½ (12)

Behr-Manning Lightning Metalite Cloth

9x11-Inch Sheets



Flexible Aluminum Oxide in a full range of grit numbers for hand operations on metal surfaces.

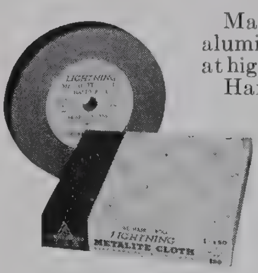
Every grain is stood pointed end up and evenly spaced by an electrical field of 46,000 volts.

Grit No.	100 and Finer	80	60	50	40	36	30	24
Per 100 Sheets	$22.70	24.20	26.20	28.10	30.20	32.60	35.00	37.50
Min. Pkg.	50	50	50	50	50	25	25	25
Unit Pkg.	500	500	500	500	500	250	250	250

We have it. See us first.

Behr-Manning Lightning Metalite Cloth

In 50-Yard Handy Rolls



Mainly used for metal sanding. An aluminum oxide free of impurities, made at high temperature in an electric furnace. Handy rolls supply cloth in a convenient form which gives the machinist the proper length required for his job.

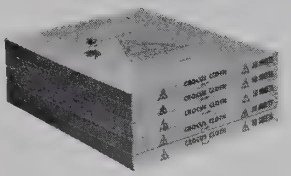
Widths ½ and ¾ inches contain 20 rolls per unit pkg.; min. pkg., 2.

Widths, 1 thru 2½ inches contain 10 rolls per unit pkg.; min. pkg., 1.

	Grit No.							
Width Inches	100 & finer Per Roll	80 Per Roll	60 Per Roll	50 Per Roll	40 Per Roll	36 Per Roll	30 Per Roll	24 Per Roll
½	$3.50	$3.70	$3.90	$4.10	$4.30	$4.50	$4.70	$4.90
¾	4.70	4.90	5.20	5.40	5.70	6.10	6.40	6.80
1	5.80	6.00	6.50	6.80	7.20	7.70	8.10	8.60
1¼	6.90	7.20	7.70	8.20	8.70	9.30	9.80	10.40
1½	8.10	8.40	9.00	9.60	10.20	10.90	11.50	12.20
1¾	9.10	9.60	10.30	11.00	11.60	12.50	13.20	14.10
2	10.30	10.80	11.60	12.30	13.10	14.00	14.90	15.90
2¼	11.40	12.00	12.90	13.70	14.60	15.60	16.60	17.70
2½	12.50	13.20	14.20	15.10	16.10	17.20	18.40	19.50

Crocus Cloth

9x11-Inch Sheets



Made in only one degree of fineness for metal cleaning and polishing where cutting down metal surface is objectionable.

Unit package, 500 sheets; minimum package, 50 sheets.

Per 100 .... $12.50

Behr-Manning Mohawk Flint Paper

9x10-Inch Sheets

A light and flexible flint paper.

Extra fine, fine and medium furnished in unit package of 1000 sheets and minimum package of 100 sheets.

Coarse and extra coarse comes in unit package of 500 sheets and a minimum package of 50 sheets.

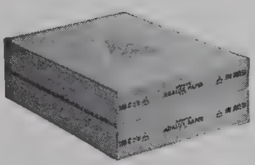
FINE
MOHAWK FLINT PAPER
100
MEDIUM
MOHAWK FLINT PAPER
100
COARSE
MOHAWK FLINT PAPER
50

Grade	Per 100
Extra Fine	$2.80
Fine	2.80
Medium	3.15
Coarse	4.05
Extra Coarse	5.15

Behr-Manning Finishing Paper

Adalox—Durite—Garnet

9x11-Inch Sheets

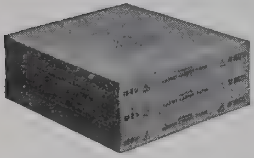


A specialized product for fine wood finishing and rubbing down paint fillers and undercoats. It may be used for dry or oil rubbing.

Made on a light 40-pound manila rope paper backing with a light flexible coating.

No.		Per 100	Package		No.		Per 100	Package	
Grit	Symbol	Sheets	Min.	Unit	Grit	Symbol	Sheets	Min.	Unit
280	8/0	$9.30	100	1000	150	4/0	$9.30	100	1000
240	7/0	9.30	100	1000	120	3/0	9.30	100	1000
220	6/0	9.30	100	1000	100	2/0	9.30	100	1000
180	5/0	9.30	100	1000	80	0	10.40	50	500

Behr-Manning Garnet Cabinet Paper

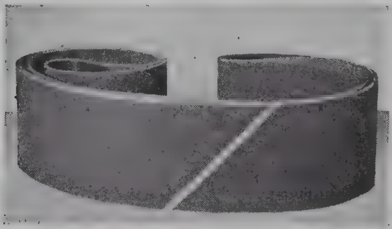


Medium Weight
9x11-Inch Sheets

Garnet paper for general hand sanding: Openkote for work on paints, varnishes, etc.; Closekote for work which does not load up paper.

No. Grit	No. Symbol	Per 100 Sheets	Package Min.	Package Unit	No. Grit	No. Symbol	Per 100 Sheets	Package Min.	Package Unit
150	4/0	$9.30	100	1000	40	1½	$15.60	50	500
120	3/0	9.30	100	1000	36	2	17.50	50	500
100	2/0	9.30	100	1000	30	2½	38.60	50	500
80	0	10.40	50	500	24	3	42.60	50	500
60	½	12.00	50	500	20	3½	46.80	50	500
50	1	13.70	50	500	..	...	.....	..	...

Behr-Manning Cloth Belts



Made in all lengths and widths both in wet or dry types for surface sanding or grinding of practically any material.

The wet type belt is used where it is necessary to reduce frictional heat which might cause burning, warping, chipping or discoloration.

Let us make a recommendation of the proper type of belt and grit required for your job.

Behr-Manning Contact Wheels

Constructed with a rigid metal center and a flexible cushion and wheel face. Embodies the principle of compression and reaction. Assembled so that when rotated the flexible cushion face reacts or springs into action, imparting resiliency which gives smooth, uniform cutting action when used with coated abrasive belts. The degree of resiliency is governed by the density of the cushion.

Medium-Soft Density

Face width, 2½ inches. Available recessed one side only; 1⅜ inches deep by 1¾-inch diameter.

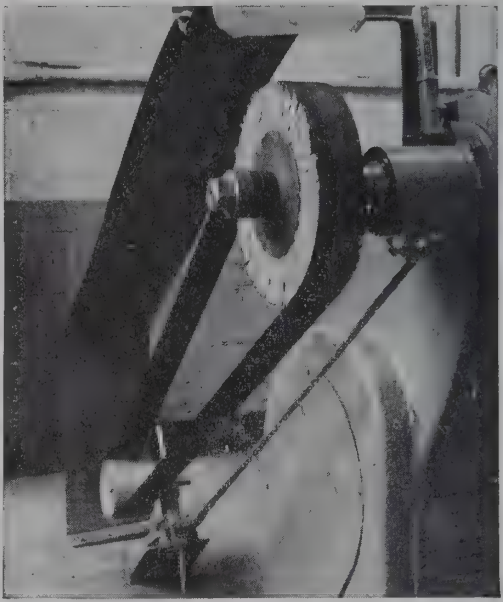
Diameter........................inches	6	8
Each..................................	$19.45	24.70
Arbor Hole......................inches	⅝	⅝, ¾, ⅞
Shipping Weight...............pounds	7	10

Other Densities

Available in soft, medium-soft and hard densities with 1⅛, 1¼, or 1½-inch arbor hole.

Width Face Inches	12-Inch Diameter Each	12-Inch Diameter Ship. Wt. Lb.	14-Inch Diameter Each	14-Inch Diameter Ship. Wt. Lb.
2	$29.95	15	$32.20	18
3	36.10	20	39.45	23
4	44.95	24	50.95	27

No. 31-425 Delta Bench Type Idler Backstands



Facilitates conversion of bench grinders to backstand belt sanding, finishing assemblies. Bench backstands usually assembled to permit using Metalite cloth X wt. belts 2, 3, 4 in. wide by required length. Right-hand reversible stamped steel pulley, 5 3/16-in. diam. x 4-in. face.

No. **31-425**, One in Ctn.; Wt., 20 Lb............each **$27.50**

No. 20 Floor or Wall Type Brackets

Bracket has been designed for use with Delta idlers when used in conjunction with floor type polishing lathes or jacks. Such installations are limited to the use of contact wheels not over 12-inch diameter or 3-inch face width.

No. **20**..each **$7.50**

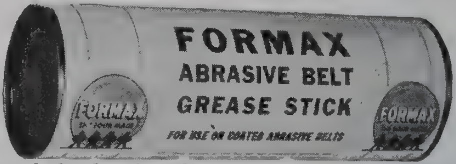
Remote Control Arms

For use with all models of Delta idlers. Can be quickly installed as a replacement for plastic knob used for tracking. Remove knob and slip remote tracking arm over tracking screw; tighten set-screw found in arm.

No. **30A**, 45 Inches Long: for Installations Using Belts 132 Inches Long......................each **$5.00**

No. **30B**, 60 Inches Long; for Installations Using Belts Longer than 132 Inches. ....each **5.00**

Formax Abrasive Belt Grease Sticks



Prevents belt clogging, keeps work cool, increases belt life and produces smooth finishes through lubrication. Diam. tube, 2½ in.; lgth. tube 8 in. Packed 24 cardboard tubes per case. Approx. wt. per tube, 1½ lb.

No. F-26 is a light bodied grease which spreads out thinly yet remains wet on the belt. Recommended for all belt polishing operations on all metals, plastic and glass.

No. **F-26**.................................each .....

No. F-90 is a pure white-hard grease developed especially for extremely severe coarse grit belt operations where a heavier and higher melting point grease is required.

No. **F-90**.................................each .....

Behr-Manning Disc Cement

A quick-setting and durable cement which is easy to apply.

Positive in its adhesive qualities and is highly recommended for fastening abrasive paper or cloth discs to metal or wood disc heads.

1-Gallon Can.................................each **$2.00**

OPENKOTE 24 METALITE 24
BEHR-MANNING
DURITE

Behr-Manning Metalite Fiber Discs

For use on portable sanding machines for metal scouring and finishing.

Has rugged, strong backing, fast cutting qualities, and a firm grain adhesion.

Adaptable to any type of disc holder.

Minimum package, 25; unit package, 100.

Flat Type—Openkote

Diam. In.	Grit Nos.					
	80&Finer	60	50	36	24	16
5	$45.50	$48.40	$50.80	$54.40	$55.60	$71.60
6	48.90	52.10	54.70	58.50	59.90	77.10
7	52.50	55.70	58.70	62.80	64.10	82.50
8	59.50	63.20	66.40	71.20	72.80	93.60
9⅛	70.00	74.40	78.10	83.60	85.50	110.00
Depressed Center—Openkote						
7	$61.70	$64.90	$67.90	$72.00	$73.30	$91.90
9⅛	82.30	86.70	90.50	95.90	97.90	122.30

Behr-Manning Speed-Wet Metalite Fiber Discs

SPEED-WET METALITE
36

Recommended for portable machine grinding and finishing of all kinds. Double bonded for maximum production in a heat-set resin type adhesive which firmly anchors each individual cutting grain to the backing and provides a production tool of highest value.

Unit package of 100 discs and a minimum package of 25 discs.

Per 100
Flat Type

Diam. In.	Grit Nos.					
	80 & Finer	60	50	36	24	16
5	$45.50	$48.40	$50.80	$54.40	$55.60	$71.60
6	48.90	52.10	54.70	58.50	59.90	77.10
7	52.50	55.70	58.70	62.80	64.10	82.50
8	59.50	63.20	66.40	71.20	72.80	93.60
9⅛	70.00	74.40	78.10	83.60	85.50	110.00
Depressed Center						
7	$61.70	$64.90	$67.90	$72.00	$73.30	$91.90
9⅛	82.30	86.70	90.50	95.90	97.90	122.30

Behr-Manning Order Guide

List all items in full to insure correct specifications. Follow this sequence; quantity, grit number or symbol, dimensions and material.

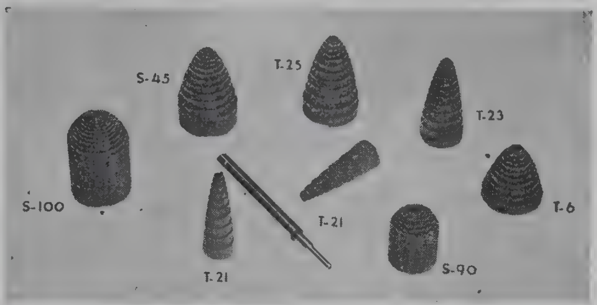
Quantity	Symbol and Grit No.	Dimensions Inches	Material
500 Sheets	80–. . .	9 x11	Lightning Metalite Cloth
250 Sheets	36–. . .	9 x11	Lightning Metalite Cloth
1000 Sheets	220–6/0	9 x11	Garnet Finishing Paper Openkote
100 Discs	24–. . .	*9⅛x⅞	Metalite Fibre
200 Bands	50–. . .	†3 x 9	Metalite Cloth X Weight
20 Belts	60–½	†6 x14	Lightning Adalox Cloth X Weight
10 Rolls	120–. . .	1	Lightning Metalite Cloth Handy Rolls
1 Roll	100–2/0	24	Lightning Adalox Paper Openkote
1 Roll	. . .–4/0	24	Durite Paper Closekote
500 Sheets	400A–. . .	9 x11	Speed-Wet Durite Paper
1000 Sheets	Fine	9 x10	Mohawk Flint Paper

***When ordering** discs, show outside diameter first, then center hole size.

†**When ordering** belts, bands or sleeves, show width first then length, not diameter.

Behr-Manning Lightning Metalite Cloth Spirapoints

All Grits



Excellent running mates for solid abrasive mounted points. As a follow-up tool they can be used on same types of work to obtain high finishes, particularly in odd shaped areas having varying radii.

Grits No. 50 and finer are supplied with ⅛-inch hole to fit threaded mandrel with ¼-inch shank and ⅛-inch pilot. Grits Nos. 40 and 36 are supplied with 3/16-inch hole to fit threaded mandrel with ¼-inch shank and 3/16-inch pilot.

All sizes come in a unit package of 500 and a minimum package of 100.

Grits available: 500, 400, 320, 280, 240, 220, 180, 150, 120, 100, 80, 60, 50, 40 and 36.

When ordering specify symbol number.

Full Taper Type

Symbol	Per 100	Base Diam. In.	Overall Height Inches	Symbol	Per 100	Base Diam. In.	Overall Height Inches
T-1	$32.00	⅜	1	T-21	$33.60	½	1½
T-2	32.00	½	1	T-22	44.40	⅝	1½
T-3	40.00	⅝	1	T-23	44.40	¾	1½
T-4	40.00	¾	1	T-24	57.20	⅞	1½
T-5	49.60	⅞	1	T-25	57.20	1	1½
T-6	49.60	1	1	. . . .	. . . . .	. . .	. . .

Sidewall Type

Symbol	Per 100	Base Diam. In.	Overall Height Inches	Sidewall Height Inches	Symbol	Per 100	Base Diam. In.	Overall Height Inches	Sidewall Height Inches
S-30	$32.00	½	1	¾	S- 48	$68.80	1	2¼	1¼
S-31	32.80	½	1¼	1	S- 49	72.40	1	2½	1½
S-32	33.60	½	1½	1¼	S- 90	40.00	¾	1	¾
S-33	34.80	½	1¾	1½	S- 91	42.00	¾	1¼	1
S-34	35.60	½	2	1¾	S- 92	44.40	¾	1½	1¼
S-35	36.80	½	2¼	2	S- 93	46.40	¾	1¾	1½
S-36	37.60	½	2½	2¼	S- 94	48.80	¾	2	1¾
S-37	40.00	¾	1	½	S- 95	51.20	¾	2¼	2
S-38	42.00	¾	1¼	¾	S- 96	53.20	¾	2½	2¼
S-39	44.40	¾	1½	1	S- 97	49.60	1	¾	¼
S-40	46.40	¾	1¾	1¼	S- 98	49.60	1	1	½
S-41	48.80	¾	2	1½	S- 99	53.20	1	1¼	¾
S-42	51.20	¾	2¼	1¾	S-100	57.20	1	1½	1
S-43	53.20	¾	2½	2	S-101	60.80	1	1¾	1¼
S-44	53.20	1	1¼	¼	S-102	64.80	1	2	1½
S-45	57.20	1	1½	½	S-103	68.80	1	2¼	1¾
S-46	60.80	1	1¾	¾	S-104	72.40	1	2½	2
S-47	64.80	1	2	1	. . . . .	. . . . .	. . .	. . .	. . .

Behr-Manning Steel Mandrels

For metalite cloth specialties. Made of high grade steel, carefully machined, finely finished and Du-lite dipped for anti-corrosive surface.

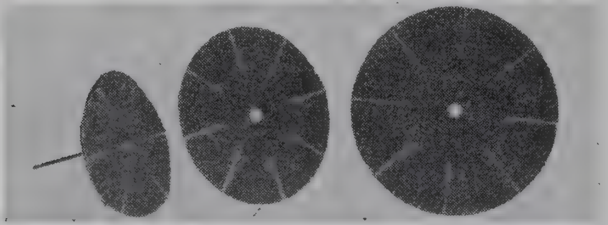
Threaded type with pilot for spirapoint and glued pencils.

No. D-21711

No. D-21712

No. D-21711, 3/16-Inch Pilot. . . . . .each **$.75**
No. D-21712, ⅛-Inch Pilot. . . . . .each **.75**

Behr-Manning Metalite Cloth Slotted Discs



For removing burrs or sharp edges. Will produce a radius with a high finish. Has center hole for mandrel screw. Used back to back, abrasive side to work, will do front edge, interior and back edges of a hole in one pass. Slotted discs supplied with 1/16, ⅛, 3/16 or ¼-inch center hole, according to outside diameter of disc and length of slots.

Packing Standards

Diameter.................inches	2 and Less	3 to 4	5, 6
Minimum Package..............	500	250	50
Unit Package......................	1000	1000	250

Per 100

Diam. In.	Grit Nos. 100 & Finer	80	60	50	40	36	30	24
1 & Less	$2.40	$2.40	$2.40	$2.40	$2.40	$2.60	$2.60	$2.60
2	3.80	4.00	4.20	4.40	4.60	4.80	5.00	5.20
3	6.40	6.60	7.00	7.40	7.80	8.40	8.80	9.20
3½	8.00	8.40	9.00	9.40	10.00	10.60	11.40	12.00
4	10.00	10.40	11.20	11.80	12.60	13.40	14.20	15.20
5	14.60	15.40	16.60	17.60	18.80	20.20	21.40	22.80
6	20.40	21.60	23.20	24.80	26.40	28.40	30.20	32.20

Intermediate diameters take next higher price.

Specifications

Diam. In.	No. of Slots	Die No.	Diam. In.	No. of Slots	Die No.	Diam. In.	No. of Slots	Die No.	Diam. In.	No. of Slots	Die No.
⅜	4	1199	1⅜	6	1207	2½	8	1216	4½	10	1229
½	4	1200	1½	6	1208	2¾	8	1217	4¾	10	1230
⅝	4	1201	1⅝	6	1209	3	8	1218	5	10	1231
¾	4	1202	1¾	6	1210	3¼	8	1219	5¼	10	1232
⅞	6	1203	1⅞	6	1211	3½	10	1220	5½	10	1233
1	6	1204	2	6	1212	3¾	8	1226	5¾	12	1234
1⅛	6	1205	2⅛	6	1214	4	10	1227	6	12	1235
1¼	6	1206	2¼	8	1215	4¼	10	1228	...	..	....

Brightboy Metal Finishing Compound

Hand Tablets

WELDON ROBERTS
BRIGHT BOY
CLEANS METALS

Convenient sizes for manual use and applications where work piece is rotated. Removes slight blemishes, heat marks, rust or stain.

No.	Per Dozen	Size Inches	No. in Box
88	$2.24	2¼x1⅛x⅜	72
88X	4.08	2¼x1⅛x¾	36
800	4.08	2½x2 x⅜	12
803	9.89	3¼x2 x¾	..

Brightboy Abrasive Blocks

WELDON ROBERTS
BRIGHTBOY

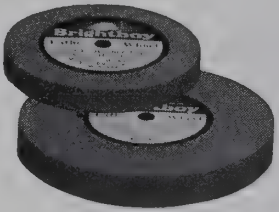
Soft rubber binder cushions the abrasive.

Made in all grades.

No.	Size Inches	Each	No.	Size Inches	Each
901	3x ⅝x¼	$.23	907	6x ¾x½	$.69
902	3x1 x¼	.29	908	6x1 x½	.86
903	4x ½x½	.35	909	5x2 x⅜	.92
904	4x2 x⅛	.35	910	6x6 x⅛	1.15
905	4x ¾x½	.52	911	6x3 x⅜	1.61
906	6x ½x½	.52	912	12x3 x⅜	3.30

Other size blocks in standard thicknesses up to ¾-inch maximum, made to order. Prices upon application.

Brightboy Wheels



Can be used on practically all standard equipment such as flexible shafts, benchgrinders, hand or stationary machines—either electrically or compressed air driven.

The soft rubber binder, essential to its versatile resilient action, requires careful compliance with operating recommendations. Wheels must be firmly clamped between wide flanges and must not be run at speeds in excess of the maximum shown in the table below.

Not for use on taper screws.

Medium Wheels for general use on flexible shafts or small machines. For finishing dies and tools and other machine shop and production line work.

Larger Wheels for heavier work; for removing burrs and rough edges from die stamped items; cleaning prior to welding; erasing heat marks after welding. Also for burring, finishing and polishing metal parts. Where thickness greater than ¾ inch is desired, 2 or more wheels can be ganged between wide flanges on the one spindle. Special centerholes to order ⅜, ⅝, ¾, 1 and 1¼ inches.

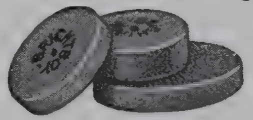
Medium Wheels

No.	Each	Size, Inches Diam.	Thick.	Bore	Max. Speed RPM.	Min. Flange Size In.
66	$.35	1½	3/16	¼	10,000	¾
77	.70	2	¼	¼	7,500	1

Larger Wheels

No.	Each	Size, Inches Diam.	Thick.	Bore	Max. Speed RPM.	Min. Flange Size In.
11	$1.05	1¼	¾	¼	12,500	⅝
12	1.01	1½	½	¼	10,000	¾
13	1.17	1½	¾	¼	10,000	¾
15	.68	2	⅛	¼	7,500	1
16	.83	2	3/16	¼	7,500	1
20	1.05	2	⅜	¼	7,500	1
21	1.12	2	½	¼	7,500	1
23	1.33	2	¾	¼	7,500	1
25	1.12	2½	⅜	¼	6,000	1¼
26	1.21	2½	½	¼	6,000	1¼
27	.88	3	⅛	¼	5,000	1½
28	1.00	3	3/16	¼	5,000	1½
29	1.09	3	¼	¼	5,000	1½
30	1.21	3	⅜	¼	5,000	1½
31	1.33	3	½	¼	5,000	1½
33	1.61	3	¾	¼	5,000	1½
35	1.33	3½	⅜	¼	4,250	1¾
36	1.52	3½	½	½	4,250	1¾
37	1.29	4	3/16	½	3,800	2
38	1.43	4	¼	½	3,800	2
39	1.61	4	⅜	½	3,800	2
40	1.73	4	½	½	3,800	2
41	2.13	4	¾	½	3,800	2
48	1.82	5	¼	½	3,000	2½
49	2.13	5	⅜	½	3,000	2½
50	2.26	5	½	½	3,000	2½
51	2.73	5	¾	½	3,000	2½
59	2.73	6	⅜	½	2,500	3
60	3.09	6	½	½	2,500	3
61	3.77	6	¾	½	2,500	3

Small Wheels



For mounting on mandrels. Used for work on tools and parts in machine shop and on production lines.

Packed 25 in a box.

No.	Each	Per Box	Size, Inches Diam.	Thick.	Bore
04	$.10	$1.30	½	⅛	1/16
05	.10	1.30	½	¼	1/16
06	.10	1.30	⅝	⅛	1/16
07	.10	1.45	⅝	¼	1/16
08	.10	1.45	¾	⅛	1/16
09	.10	1.65	¾	¼	1/16
010	.10	1.65	1	⅛	1/16
011	.10	1.75	1	¼	1/16
03	.10	1.50	⅝	*	1/16

*Tapered.

Prices shown are base prices for aluminum oxide grain, for silicon carbide grain add 15 per cent.

Brightboy Abrasives

A resilient rubber-abrasive for use on a wide range of de-burring, finishing and polishing of metals.

The soft rubber binder cushions the abrasive.

Available in a variety of binder textures and grain sizes in aluminum oxide or silicon carbide.

Binder Textures

ST, a soft resilient rubber binder similar to former Standard grade binder.

BL, of firmer texture similar to BL grade binder.

TT, of tougher texture for full abrasive action, formerly Tuff-Tex grade binder.

Grain Sizes

No.	Grit	No.	Grit	No.	Grit
436	Extra Coarse	70	Medium	120	Fine
54	Coarse	90	Medium Fine	180	Extra Fine

Grain Types

ALO, Aluminum Oxide **SIC,** Silicon Carbide

How to Specify

To obtain a wheel in soft binder (key for this under Binder is ST) with medium fine grain (No. 90 under Grain Sizes) of aluminum oxide (ALO) in size 5-inch diameter by ½-inch thick (Wheel No. 48), the correct designation would be ST-90-ALO-48.

Conversion Table

Former Texture	Present Specification
Standard	ST-70-ALO—(Wheel No.)
Tuff-Tex	TT-70-ALO—(Wheel No.)
54-BL	BL-54-ALO—(Wheel No.)
70-BL	BL-70-ALO—(Wheel No.)
120-BL	BL-120-ALO—(Wheel No.)
Fine-Tex	Fine-Tex—(Wheel No.)

Formax Spiral Stitched Buffs

Used on any type power tool for general-purpose buffing, polishing, coloring and finishing. Made of high quality cotton cloth to give long service and produce good finishes. Mount one or more buffs on the spindle shaft for making any desired thickness of buff.

Other hole sizes than shown will be furnished on request.

Packed individually in cellophane bags.

Single-Thick

A standard single thick buff. Generally necessary to mount at least two sections of buff on spindle to have a surface wide enough for efficient buffing.

Deluxe Double-Thick

For average work one buff is generally wide enough for efficient buffing. If an extra wide area is to be buffed, mount two or more buff sections together.

	Single-Thick			Deluxe Double-Thick			
Diam. Inches	No.	Each	Approx. Thick. Inches	No.	Each	Approx. Thick. Inches	Hole Size Inches
4	ST-4	$.40	¼	DT-4	$.60	½	½
6	ST-6	.60	¼	DT-6	.90	½	½
8	ST-8	.80	¼	DT-8	1.25	½	½

Clover Grinding and Lapping Compound

CLOVER
GRINDING & LAPPING
COMPOUND

Available in single-grade containers and in Duplex can. The 4-oz. and 2-oz. Duplex cans contain equal amounts of grades E and A—a combination suitable to most shop needs.

The following grades are standard factory recommendations.

4-A, Grit No. 600. For very fine lapping of oil-metering pumps for diesel engines, fine gear lapping, close-tolerance surface lapping, etc.

3-A, Grit No. 500. For same purposes as 4-A, Grit No. 600.

2-A, Grit No. 400. Microscopic fine, for fine lapping, polishing and fitting of parts.

1-A, Grit No. 320. Very fine, for fine lapping, surfacing and fitting of parts, lapping dies, gages, fine polishing, etc.

A, Grit No. 280. Fine, for finishing valve grinding, lapping cylinders, lapping rings into cylinders, grinding crank shafts into bearings, running together gearing, etc.

B, Grit No. 240. Medium fine, a finishing grade.

C, Grit No. 220. Medium, for cylinder lapping, light power grinding, etc.

D, Grit No. 180. Medium coarse, for roughing valves and medium heavy roughing.

NC, Grit No. 150. Special medium coarse grade.

E, Grit No. 120. Coarse, for fast valve grinding and use on large surfaces.

F, Grit No. 100. Coarse, for heavy work.

50, Grit No. 50. Very coarse, for extra heavy work.

Single-Grade Cans

Size Can....pounds	2 Oz.	¼	½	1	5	25
Nos. 2-A through 50....each	...	$.65	$1.10	$2.00	$8.25	$34.50
Nos. 4-A, 3-A....each	...	.85	1.30	2.47	10.73	45.00
Water Soluble....each	$.45	.65	....	2.00	8.25	34.50

Duplex Cans

2-Ounce	each	$.45
4-Ounce	each	.65

Clover Water-Soluble Grinding and Lapping Compound

NEW FORMULA
CLOVER
WATER-SOLUBLE
GRINDING AND LAPPING
COMPOUND
1/4 POUND
GRADE

A fast-cutting compound that will not cause rust or corrosion. Dissolves readily in water, may be thinned for fine lapping.

Will not dry up in can, freeze nor deteriorate.

Standard grades: fine, No. 320 grit; medium, No. 240 grit; and coarse, No. 180 grit.

One grade per can.

Also furnished in special grades for special jobs.

Size Can	2-Oz.	¼-Lb.	1-Lb.
Fine, Medium or Coarse.....each	$.45	.65	2.00

Industrial Metal Abrasive SHOT and GRIT

Heat treated Shot and Angular Grit for impact cleaning of castings, forgings and machined parts as well as stress relieving and cold working of finished parts.

Available in complete range of standard sizes.

Packed in 100-pound bags suitable to insure safe delivery.

Norton Instructive Booklets

To Help You Get More Production From Your Grinding Wheels

A Handbook on ABRASIVES GRINDING WHEELS
DISC GRINDING
A Primer on Grinding Wheel Safety
NORTON CUT-OFF WHEELS
Grits and Grinds
INTERNAL GRINDING
Setting up Metal Polishing Wheels and Belts
SURFACE GRINDING
1955

The Norton Company publishes a number of authoritative handbooks on various phases of grinding wheel uses and operation. We have a supply of these handbooks on hand covering the subjects listed, and invite you to ask for copies of any in which you may be interested.

1. Norton Cutoff Wheels. This book furnishes an interesting comparison between the abrasive wheel and the metal saw, gives the limitations of uses of cutoff wheels, a general summary of advantages you can obtain by the use of this comparatively new abrasive product. Every mechanic owes it to himself to look into the possibilities of cutoff wheels, and this book will supply him with the information he needs.

2. A Primer on Grinding Wheel Safety. Answers many questions which have suggested themselves to grinding wheel operators, such as What causes grinding wheel accidents? What can I do to prevent such accidents? What does a grinding machine operator have to know about wheel mounting? What speeds are considered safe for various kinds of steel?

3. A Handbook on Toolroom Grinding. Includes the grinding of non-ferrous cast alloy and cemented carbide tools. This handbook receives a ready welcome in toolrooms everywhere. It is a guide for the toolroom operator or apprentice, prepared by Norton engineers in co-operation with several tool and grinding machine manufacturers. It contains a wealth of information of great importance in these times when every toolroom must operate at the highest point of efficiency possible.

4. A Handbook on Thread Grinding. A booklet which discusses some of the common difficulties encountered in thread grinding and tells how they may be overcome. There are several pages of helpful graphs and tables.

5. A Handbook on Abrasive and Grinding Wheels. Contains basic information on grinding wheel comparison and selection. Details on subjects such as wheel markings, wheel specifications, variable factors influencing wheel selection and table of general grinding information compose a major portion of the booklet.

6. Truing and Dressing. Every successful operator must know how to use truing and dressing tools. Standard methods, based on a few easily understood rules are defined in this booklet, adequately illustrated. It contains illustrated answers to essential questions, as well as guidance to precautions that must be observed in using truing tools.

7. The A B C of O.D. Grinding. O.D. is the common shop expression for the outside diameter of a cylindrically shaped piece or part. This booklet covers the principal elements of cylindrical and centerless grinding, including information on both types of machines and their operation. There is a complete chapter each on the selection of wheels for cylindrical and centerless grinding.

8. The A B C of Surface Grinding. This booklet seeks to direct the attention of the operator to those details over which he has control. Grinding hints, short cuts, and miscellaneous "know-how" information contributed by experienced and old-time grinder hands and the machine builders themselves make this manual a must for your grinding library.

9. The A B C of Internal Grinding. A booklet for internal grinding machine operators endeavoring to answer some of the very practical questions which have been asked. The selection of proper wheels for internal grinding and helpful hints of how to correct common grinding faults will be of value to each and every reader.

10. Setting up Metal Polishing Wheels and Belts. A booklet of helpful information on the selection and use of abrasive grain for polishing. Typical chapter subjects are Preparation of Glue, Types of Polishing Wheels, Setting Up Polishing Wheels, Setting Up Abrasive Belts, Correct Drying, Factors of Efficient Polishing.

11. Norton Wheels for Rough Grinding. Here is a booklet for foundries, welding, forge and machine shops. It covers all of the different types of grinding operations handled in such shops and contains many helpful grinding tips and a wealth of specifications. A few of the subjects covered are: swing frame grinding, portable grinding, weld grinding and bench or floor stand grinding.

12. Disc Grinding, A Production Operation. The many advantages of disc wheels for surfacing operations are described and the many types of discs are listed—solid and segmental styles; resinoid, rubber, shellac, vitrified and silicate bonds; inserted nut, plate mounted, projecting screw and loose screw mountings.

13. Grits and Grinds. Norton Company publishes a monthly magazine, Grits and Grinds, devoted to the interests of better grinding, lapping and surface finishing. It is distributed free of charge. If you'd like to receive Grits and Grinds each month, just let us know, and we'll add your name and address to the mailing list.

Why you can Increase Production with NORTON GRINDING WHEELS

NORTON
ALUNDUM
NORTON
5250 R.P.M.
NORTON
MANUFACTURED IN U.S.A. BY NORTON COMPANY, WORCESTER 6, MASS.
12x1x1¼
32A46-K5VBE

Product Variety to make sure that you have the right kind and type of wheel for each job.

Engineering Know-How in the field, backed by the extensive engineering facilities at Worcester, to make sure that the right wheel specification is selected for each job.

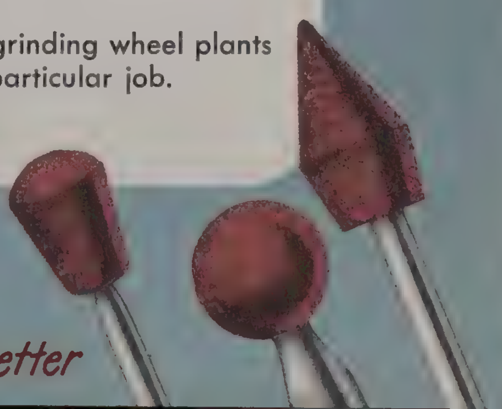
Research Ingenuity constantly at work in the largest and best equipped laboratories in the abrasive industry, to keep Norton always out front with new and improved products.

Manufacturing Skill at the Norton abrasive and grinding wheel plants to make sure that each wheel is made right for its particular job.

NORTON
ABRASIVES

Stocked in Fort Wayne only

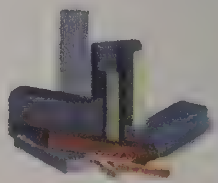
Making better products to make other products better



How We Can Help You Cut Grinding Costs

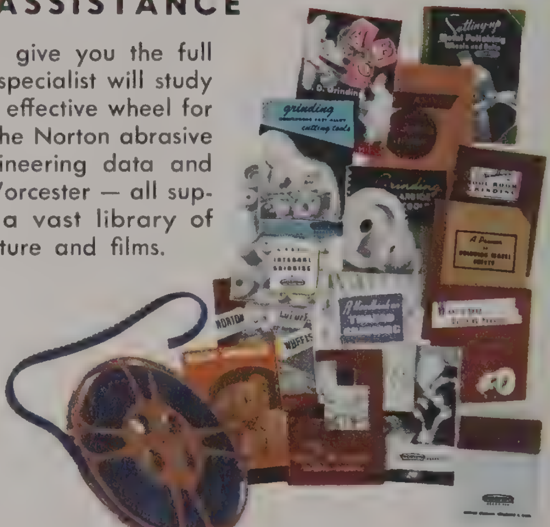
PRODUCT VARIETY

You can be sure of minimum grinding costs when you come to us for your abrasive products. Because of the completeness of the Norton line, exactly the right grinding wheel or disc or segment or stick is available to do each job *right*. This means not only the right type of product but also right in abrasive and bond, in grain, grade and structure.



APPLICATION ASSISTANCE

You can be sure, too, that expert selection will give you the full benefit of this product variety. A Norton-trained specialist will study your jobs and make certain that you get the most effective wheel for each one. And to assist him, if necessary, there's the Norton abrasive engineer for this area plus the wealth of engineering data and experience at Worcester — all supplemented by a vast library of know-how literature and films.



Setting-up Metal Polishing Wheels and Belts
grinding cutting tools
NORTON
WHEELS

LOCAL STOCKS

When the correct abrasive products for your particular jobs have once been determined they are right at hand on our shelves. And it's a stock that has been carefully selected to meet the particular needs of this area. Backing our local stocks are the five Norton branch warehouses and the gigantic stock rooms at the mile-long Worcester plant — the world's largest grinding wheel plant.

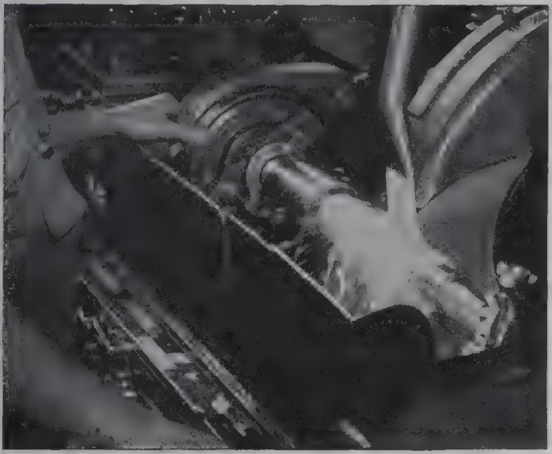
NORTON

ABRASIVES

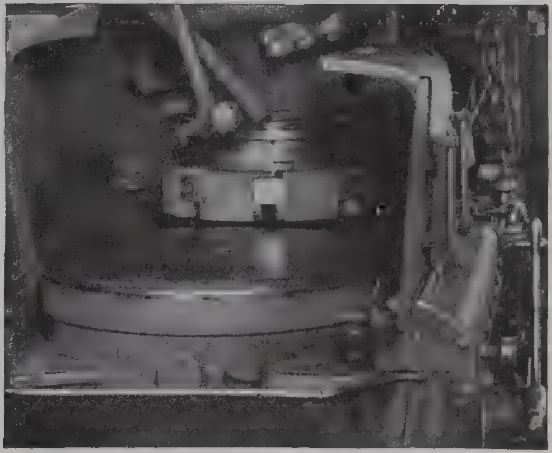
FORM 796

NORTON COMPANY'S
MAIN OFFICE AND WORKS AT WORCESTER, MA

Norton Grinding Operations

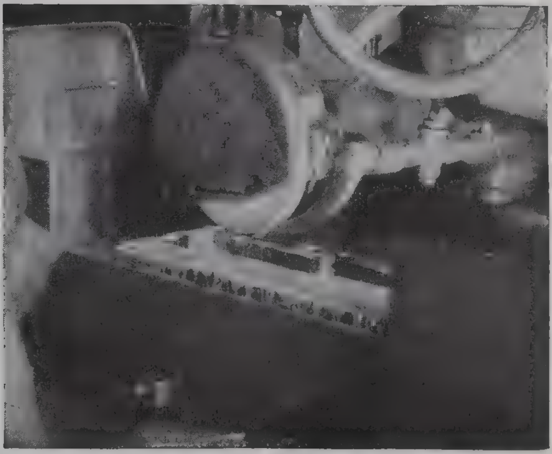


Cylindrical Grinding with Work on Centers



Vertical Spindle Type of Surface Grinder
Using Chuck with Segments

Centerless Grinding on Small Bar Stock



Reciprocating Table Type of Surface Grinder

Horizontal Spindle Type of Surface Grinder

Reclaiming a Burned Drill by Cutting Off the End
and Repointing. A Norton Cut-Off Wheel Is Used

Norton Grinding Wheels

Grain Size.—By grain size is meant the size of the cutting particles; that is, the abrasive used in making the wheel. Sizes range from 10 to 600; 10 representing the coarsest and 600 the finest.

Grade.—A term used to denote the hardness of a wheel. It actually represents a measure of the strength of the bonding or the cohesive force exercised by the bond to retain the grain in the wheel.

The Norton method for designating grades of wheels employs the letters of the alphabet from A to Z, A being the softest wheel manufactured and Z the hardest.

Structure.—Structure as referred to in the term Norton Controlled Structure relates to the arrangement of the abrasive grains in the wheel. Structure numbers range from 0 to 12; number 0 representing the closest spacing of abrasive grains and number 12 the most open.

Bond.—The next symbol in the wheel marking is a letter designating the general kind of bond used.

Type of Bond.—A Norton Company symbol designating a particular characteristic of the grinding wheel itself, due to special bonds or other variations.

V-VITRIFIED BOND

(Blank)	= Regular
BE	= "BE" Type
G	= "G" Type
A	= "A" Type
BA	= "BA" Type
P	= Porous Type
BEP	= "BE" bond, Porous Type
K	= "K" Type
KP	= "K," Porous Type

B-RESINOID BOND

(Blank)	= Regular
H	= "H" Type
ZZ	= "ZZ" Type
2	= "2" Type
4	= "4" Type
5	= "5" Type
7	= "7" Type
9	= "9" Type
18	= "18" Type
A	"A" Type
P	= Porous Type
CB[1]	= Cork Resinoid
F	= "F" Type Resinoid
N	= "N" Type Reinforced Resinoid
D	= "D" Type Reinforced Resinoid
FR	= "FR" Type Reinforced Resinoid

[1] Numerals range from 6 to 14 inclusive (even numbers only)

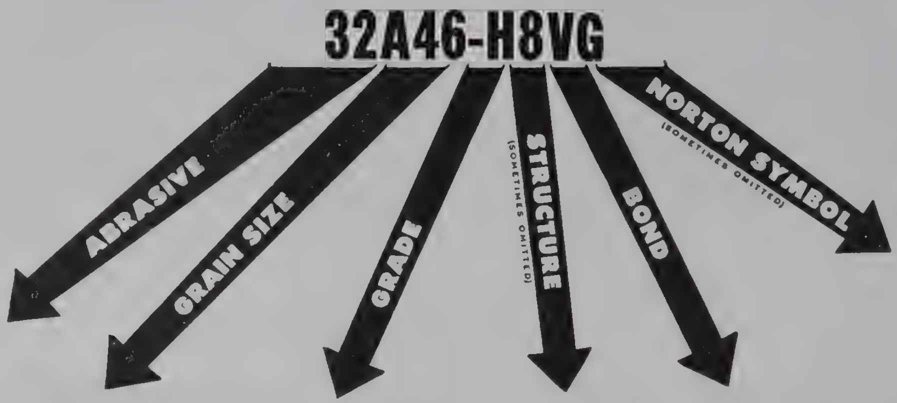
E-SHELLAC BOND

(Blank)	= Regular
3	= "3" Type
4	= "4" Type

R-RUBBER BOND

Bond No.	= Regular
R	= Resilient Rubber

Below is Shown a Typical Norton Grinding Wheel Marking



Alundum = A
15 Alundum = 15A
19 Alundum = 19A
32 Alundum = 32A
38 Alundum = 38A
57 Alundum = 57A
37 Crystolon = 37C
39 Crystolon = 39C

Coarse	Medium	Fine	Very Fine
10	30	70	220
12	36	80	240
14	364	90	280
16	46	100	320
20	54	120	400
24	60	150	500
		180	600

Soft		Medium		Hard	
A	E	I	M	Q	V
B	F	J	N	R	W
C	G	K	O	S	X
D	H	L	P	T	Y
				U	Z

The structure of a wheel refers to the relative spacing of the grains of abrasive. It is designated by a number, the larger the number, the wider the grain spacing.

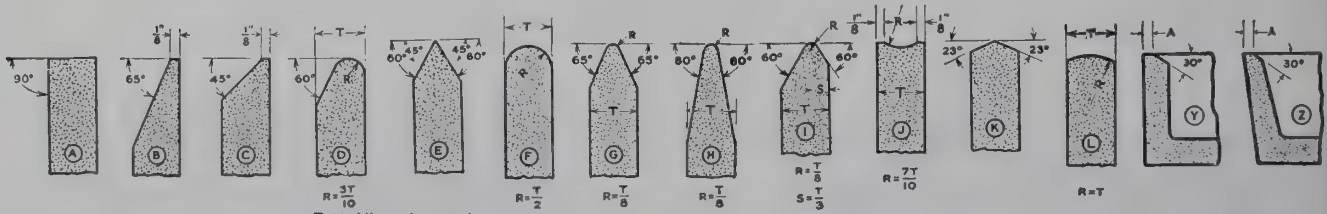
V = Vitrified
S = Silicate
B = Resinoid
R = Rubber
E = Shellac
O = Magnesite

Grinding Wheel Selection

In choosing the proper grinding wheel to be used, the first thing to be considered is the proper abrasive; second, whether the wheel should be coarse, medium or fine; third the hardness of the wheel; fourth, whether the primary consideration is speed in cutting, or for a dense structure to give a better finish and to hold its shape better; and last, whether operating speed calls for an organic bond, or if there is some other condition, such as a polished finish, why a vitrified bond would not be best. We shall be glad to assist you in selecting the proper wheel for any grinding job.

Standard Shapes of Grinding Wheel Faces

When no face is specified a straight A face wheel is furnished. The different faces which are regularly supplied are designated by letters as shown below. Wheels with any of the standard shapes of wheel faces except A are subject to an extra price.



Dotted lines show angle of bevel for E-face on glass wheels

Recommended Grinding Wheel Speeds

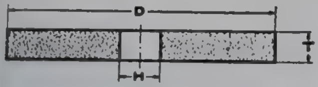
Too slow a speed means wastage of abrasive without much useful work in return; excessive speed may result in hard grinding action and may introduce danger of breakage. In general, it is better to operate grinding wheels at speeds recommended by the maker. The grits, grades and structures usually recommended for certain grinding operations are based on the assumption that the recommended speeds will be employed. If for some reason they cannot be, then the grade at least must usually be changed to suit this condition. In any case the maximum safe operating speed marked on the wheel must never be exceeded.

Type of Grinding	Speed, SFPM.
Cylindrical Grinding	5500–6500
Internal Grinding	2000–6000
Snagging, Offhand Grind (Vitrified Whl.)	5000–6000
Snagging (Rubber and Resinoid Wheels)	7000–9500
Surface Grinding	4000–5000

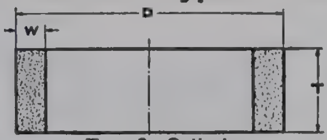
Type of Grinding	Speed, SFPM.
Knife Grinding (Machine Knives)	3500– 4500
Hemming Cylinders	2100– *5000
Wet Tool Grinding	5000– 6000
Cutlery Wheels (Large Wheels, Offhand)	4000– 5000
Rubber, Shellac and Resinoid Cutoff Whls.	9000–*16000

*These higher speeds are recommended only where bearings, protection devices and machine rigidity are adequate.

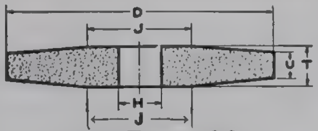
Standard Types of Norton Grinding Wheels



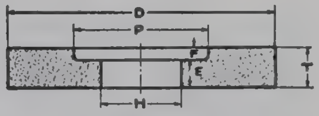
Type 1—Straight



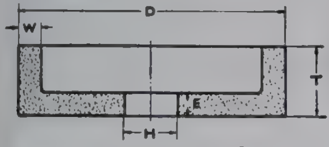
Type 2—Cylinder



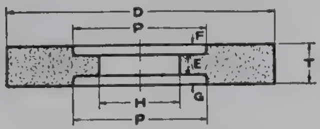
Type 4—Tapered 2 Sides



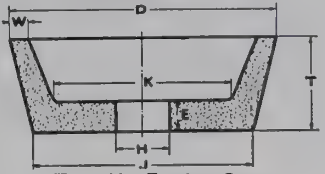
Type 5—Recessed 1 Side



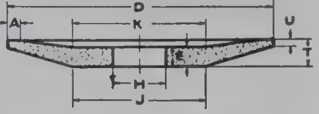
Type 6—Straight Cup Recessed One Side



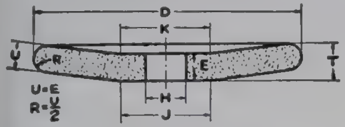
Type 7—Recessed 2 Sides

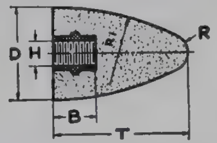


Type 11—Flaring Cup

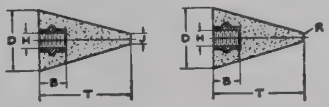


Type 12—Dish

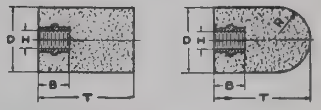

D
K
U
R
E
T
H
J
U=E
R=U/2
Type 13—Saucer



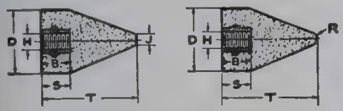
Type 16—Cone, Curved Side



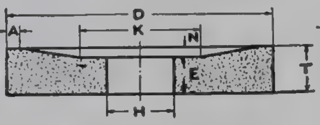
Cones
Type 17—Sq. Tip Type 17R—Rd. Tip



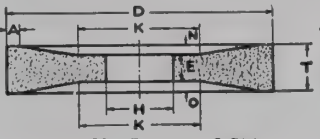
Plugs
Type 18—Sq. End
Type 18R—Rd. End



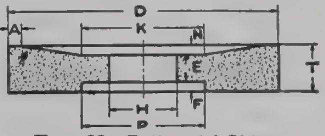
Type 19 Type 19R Plugs —Conical End



Type 20—Relieved 1 Side



Type 21—Relieved 2 Sides

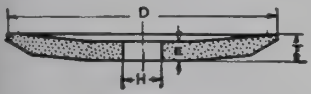


Type 22—Relieved 1 Side, Recessed Other Side

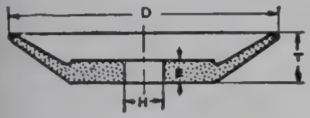
Key to Letter Dimensions

A = Radial Width of Flat at Periphery.
B = Depth of Blind Hole Bushing.
D = Diameter (Overall).
E = Thickness at Hole.
F = Depth of Recess One Side.
G = Depth of Recess Other Side.
H = Hole Diameter.
J = Diameter of Outside Flat.
K = Diameter of Inside Flat.
N = Depth of Relief One Side.
O = Depth of Relief Other Side.
P = Diameter of Recess.
R = Radius.
S = Length of Cylindrical Section.
T = Thickness (Overall).
U = Width of Edge.
V = Face Angle.
W = Wall (Rim) Thickness at Grinding Face.

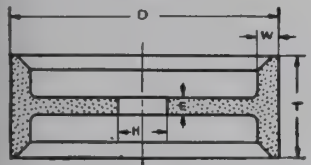
Special Shapes of Grinding Wheels



Special A



Special B



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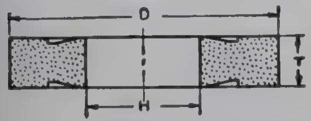

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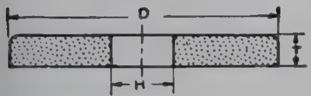

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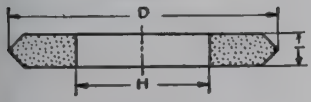
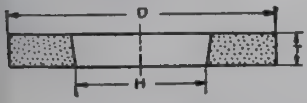


Special DB



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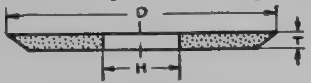

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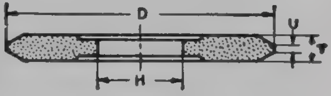
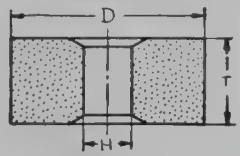


Special GG



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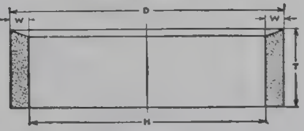

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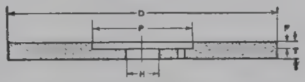

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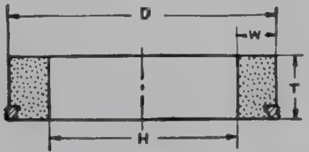

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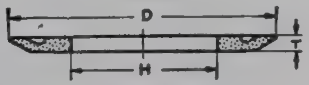

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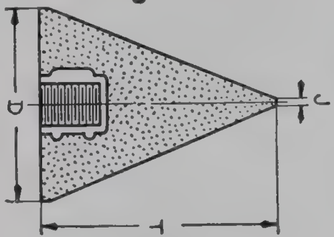

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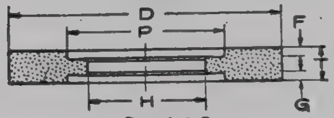

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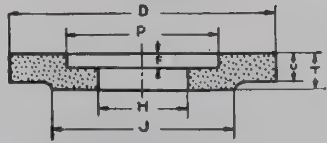

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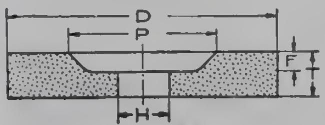

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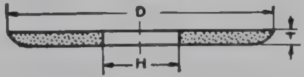

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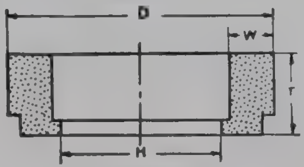

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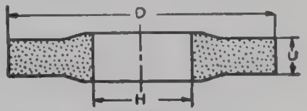

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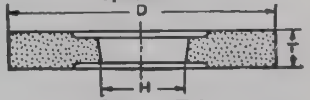

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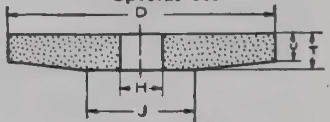
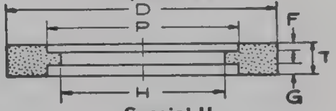


Special TS



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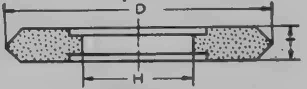
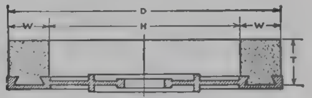


Special W



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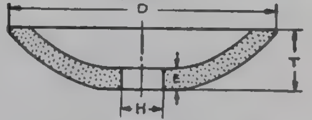

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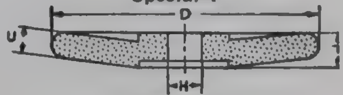
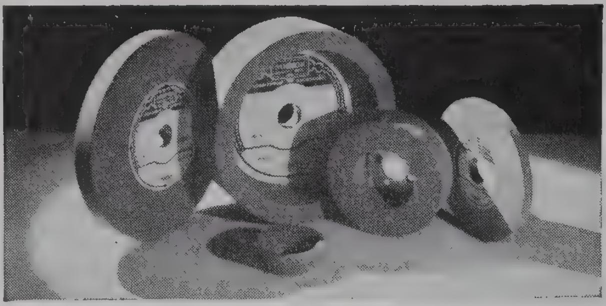


Special Z

Norton Grinding Wheels



Wheels are made in varieties of shapes and sizes to fit requirements. Diameters range from $\frac{3}{16}$ to 60 inches; thickness from $\frac{1}{64}$ to 20 inches.

Abrasives

Abrasives are trade-marked Alundum, 19 Alundum, 32 Alundum, 38 Alundum, Crystolon and 39 Crystolon. Alundum abrasives are adapted for grinding materials of high tensile strength, Crystolon for materials of low tensile strength.

Alundum abrasive is adapted for heavy duty snagging operations and for severe precision grinding where heavy pressures are exerted. The new 32 Alundum abrasive is suited for both heavy and light grinding operations where faster and sharper cutting action will be most effective. The 38 Alundum abrasive is best suited for lighter work such as internal and surface grinding and tool and cutter work. The 19 Alundum material is an intermediate abrasive well adapted for grinding almost every type of high tensile strength material except where extreme conditions exist.

Crystolon (silicon carbide) abrasive differs materially from the aluminous abrasives (Alundum). Usually preferred for metals of low tensile strength, such as cast and chilled iron, non-ferrous metals such as copper, aluminum, zinc, tin and their alloys, and for most non-metallic substances such as wood, rubber, celluloid, pearl, marble and stone.

Bonds

Bonds employed are vitrified, silicate, shellac, resinoid, and rubber.

Vitrified bonds are used for 75% of the grinding wheels manufactured. The other types are used when special conditions are involved.

Silicate bonded wheels have a milder or less harsh grinding action and are especially adapted to that class of work requiring a delicate edge, such as edged tools and cutlery.

Shellac bonded wheels are capable of producing a high degree of finish, and very thin wheels can be made by this process. The elasticity or non-rigidity of the bond is an especially desirable quality in some classes of work, notably in saw sharpening and in the grinding of granite and marble.

Resinoid bonded snagging wheels operating at 900 sfm. are being employed successfully for high speed snagging of steel and malleable castings and for billet and ingot grinding. Resinoid cutting-off wheels have now become a very important factor in cutting-off all kinds of materials.

Rubber bonded wheels is a type used when the nature of the work requires a thin wheel of great strength, as in the grinding of grooves. Thick rubber wheels are also used for grinding of malleable iron and steel castings. They are operated at a speed considerably higher than that employed for vitrified wheels.

When ordering state diameter, thickness, diameter of hole, and description of machine and job.

The following information is required regarding mounting: diameter circles on which holes, inserts or screws are located. number of inserts, holes or screws on each circle, diameter thread in lugs (inserted lug type); arrangement of holes, that is spacing, in line radially or staggered. Give angles or template in case of staggered type; diameter of plate center hole (plate mounted type).

Special wheels can be made to order.

For Further Information. Write for Special Catalog

Norton Alundum and Crystolon Abrasive Grain

NORTON
ABRASIVE GRAIN
GRINDING AND POLISHING
NORTON
ABRASIVE GRAIN
NORTON

Alundum (Aluminum Oxide)

For general industrial, stone, glass polishing.

Style Package	Weight Pounds	Flour Sizes per Pound				
		*†4 to 240 Incl.	‡F, 2F 3F, 4F and XF	§280, 320, 400	§500	§600
Large Drums.....	36,000 Min.	$.145	$.1675	.....	.....	.....
Large Drums.....	23,000 Min.	.1475	.17	.....	.....	.....
Tons in Large Drums, 6–8 Drums	‖	.1575	.18	$.365	$.4075	$.565
Large Drums.....	‖375	.165	....	.....	.....	.....
Large Drums.....	‖325	....	.1875	.375	.415	.....
Large Drums.....	‖225	....	....	.....	.....	.575
Drums...........	100	.1875	.21	.3975	.44	.595
Drums...........	50	.21	.23	.4175	.46	.6175
Drums...........	25	.24	.2625	.45	.4925	.6475
Cans............	10	.33	.35	.545	.585	.7425
Cans............	5	.47	.49	.68	.72	.88
Cans............	1	.78	.84	1.04	1.10	1.25

38 Alundum

(White Aluminum Oxide)

For general industrial and stone polishing.

Style Package	Weight Pounds	Flour Sizes per Pound				
		4 to 240 Incl.	XF	280, 320 400	500	600
Large Drums.....	36,000 Min.	$.185	$.2175	.....	.....	.....
Large Drums.....	23,000 Min.	.1875	.22	.....	.....	.....
Tons in Large Drums, 6–8 Drums	‖	.1975	.23	$.3975	$.445	$.62
Large Drums.....	‖350	.205	....	.405	.4525	.....
Large Drums.....	‖225	....	.2375	.....	.....	.63
Drums...........	100	.23	.26	.43	.4775	.66
Drums...........	50	.25	.2825	.4525	.50	.68
Drums...........	25	.2825	.315	.485	.53	.71
Cans............	10	.3725	.4125	.5875	.63	.81
Cans............	5	.52	.5925	.77	.82	.99
Cans............	1	.85	.93	1.15	1.21	1.43

Crystolon (Silicon Carbide)

For general industrial, glass, stone polishing.

Style Package	Weight Pounds	Flour Sizes per Pound				
		†8 to 240 Inch	‡F, 2F 3F, 4F and XF	280, 320, ¶400	¶500	¶600
Large Drums.....	36,000 Min.	$.29	$.225	....	....	....
Large Drums.....	23,000 Min.	.2025	.2275	....	....	....
Tons in Large Drums, 6–8 Drums	‖	.2125	.2375	$.3925	$.4375	$.6025
Large Drums.....	‖335	.2225	....	....	....	....
Large Drums.....	‖300	....	.245	.40	.445	....
Large Drums.....	‖225	....	....	....	....	.61
Drums...........	100	.2425	.265	.4225	.4675	.63
Drums...........	50	.265	.29	.445	.49	.655
Drums...........	25	.2975	.32	.4775	.52	.685
Cans............	10	.385	.41	.5675	.61	.7825
Cans............	5	.52	.57	.73	.78	.94
Cans............	1	.83	.88	1.09	1.15	1.35

*If for pressure blasting, specify whether shipment is desired in large drums or 100-pound bags.

†Paper and cloth sizing for polishing purposes, $.01 per pound extra.

‡For unclassified flours when B treated, add $.01½ per pound.

§Not available in alundum X.

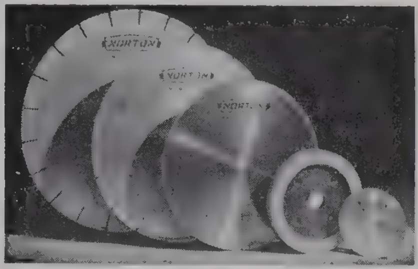
‖Weights of large drums vary according to grain size.

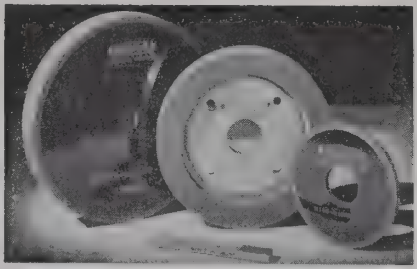
¶Not available in crystolon X, untreated.

NORTON ABRASIVES STOCKED IN FORT WAYNE ONLY

Norton Diamond Wheels

Resinoid Bonded Wheels


Metal Bonded Wheels


Vitrified Bonded Wheels

Norton Diamond Wheels are made in resinoid, metal and vitrified bonds, in a wide variety of shapes and sizes including diamond saws and small wheels mounted on spindles. Depths of diamond section are 1/32, 1/16, 1/8 and 1/4 inches. Very small wheels often are made with diamonds throughout.

A complete catalog showing all standard shapes and sizes will be furnished upon request.

Use Norton Resinoid Bonded Diamond Wheels for:

Cutting-off and slotting:

1. Cutting sintered carbide blanks to desired lengths where fast cutting action is a primary consideration.

Precision grinding:

1. Cylindrical, surface, and internal grinding of carbide tools, cutters, dies, gages, etc.
2. Sharpening carbide inserted-tooth milling cutters, reamers, drills, etc.
3. Grinding threads from solid in carbide taps and gages.
4. Grinding chip breaker grooves in carbide tools, especially where wheels thinner than 1/4 inch are required.
5. Finish surfacing glass prisms, lenses, etc. after rough grinding with metal bonded diamond wheel.

Use Norton Metal Bonded Diamond Wheels for:

Offhand grinding, using cup wheels:

1. Sharpening single point carbide tools when long life is the primary consideration.
2. Edging Piezo quartz crystals.

Cutting-off and slotting:

1. Cutting sintered carbide blanks to desired lengths.
2. Cutting rough semi-sintered blanks to desired sizes and shapes.
3. Salvaging chipped carbide tools by cutting-off the damaged portion of the carbide tip.
4. Cutting glass.
5. Cutting quartz crystal bars into wafers.

Precision grinding:

1. Generating curved surfaces on lenses.
2. Surfacing, edging and beveling lenses.
3. Surfacing glass prisms.
4. Grinding ceramic insulators, etc.

Use Norton Vitrified Bonded Diamond Wheels for:

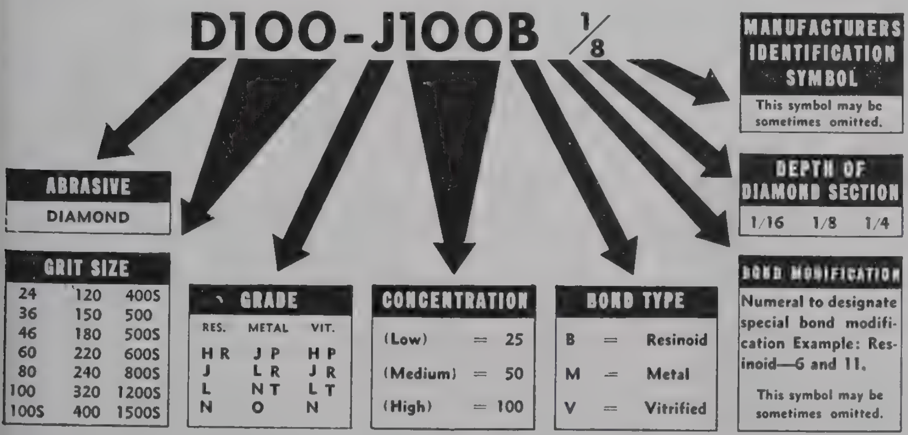
Offhand grinding, using cup wheels:

1. First choice for finish grinding single-point carbide tools.
2. Edging Piezo quartz crystals.

Precision grinding:

1. Surface grinding cemented carbide form tools, cutter blades, dies, gages, mold liners, etc.
2. Grinding chip breaker grooves where wheels required are no thinner than 1/4 inch.

Analysis of Typical Norton Specification D100-J100B 1/8



MANUFACTURERS IDENTIFICATION SYMBOL

This symbol may be sometimes omitted.

ABRASIVE

DIAMOND

DEPTH OF DIAMOND SECTION

1/16 1/8 1/4

GRIT SIZE

24	120	400S
36	150	500
46	180	500S
60	220	600S
80	240	800S
100	320	1200S
100S	400	1500S

GRADE

RES.	METAL	VIT.
H R	J P	H P
J	L R	J R
L	N T	L T
N	O	N

CONCENTRATION

(Low)	=	25
(Medium)	=	50
(High)	=	100

BOND TYPE

B	=	Resinoid
M	=	Metal
V	=	Vitrified

BOND MODIFICATION

Numeral to designate special bond modification Example: Resinoid—6 and 11.

This symbol may be sometimes omitted.

HAND HONES will be marked with grit size, bond type and depth of diamond section. (No grades or concentration will be shown.)

Explanation of Typical Diamond Wheel Markings

There are seven positions in the markings describing the following characteristics:

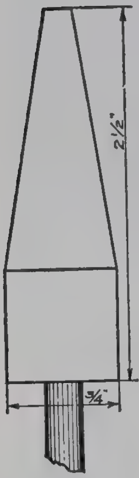
Position 1—Letter D denoting Diamond
Position 2—Grit Size
Position 3—Grade
Position 4—Diamond Concentration
Position 5—Bond
*Position 6—Bond Modification
Position 7—Depth of Diamond Section
Position 8—Manufacturer's Identification Symbol

*The use of this symbol is optional Regular Norton Diamond Wheels do not require this to adequately describe them, but there may be instances where special bond modifications may be required.

Norton Mounted Points and Wheels

Group A—Special Shapes

Mounted wheels and mounted points made in sizes and shapes to meet all demands of industrial grinding. For usual job, mounted products are vitrified bonded. Spindle of tempered stainless steel. Inserted end has a heavy knurl to insure permanent anchoring of abrasive on quill.



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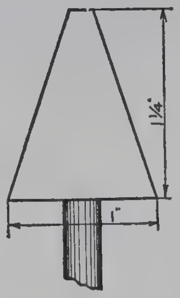

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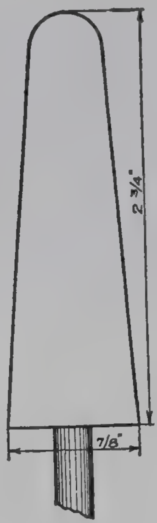

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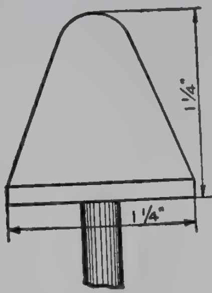

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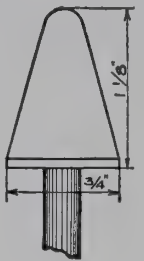

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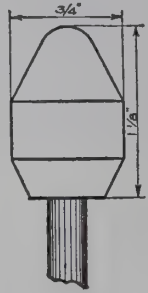

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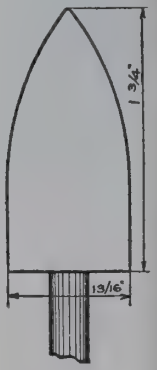

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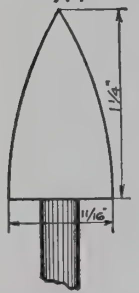

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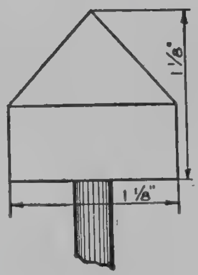

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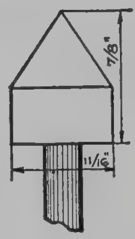

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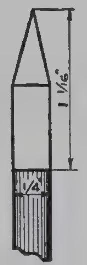

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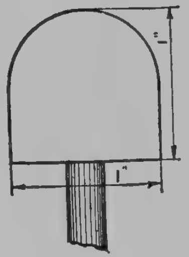

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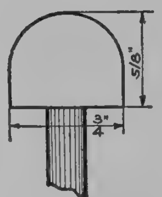

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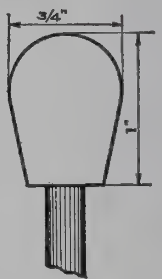

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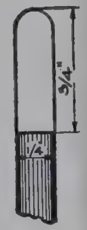

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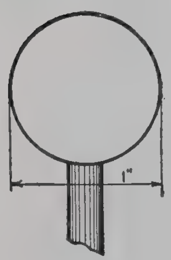

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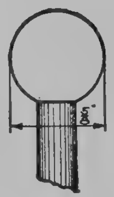

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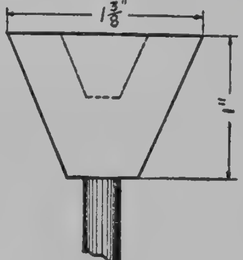

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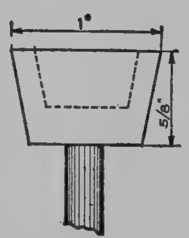

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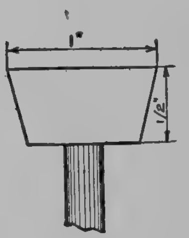

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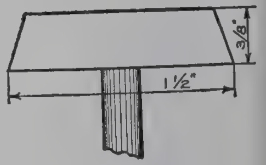

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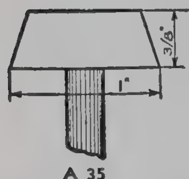

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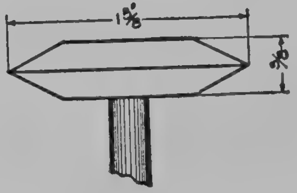

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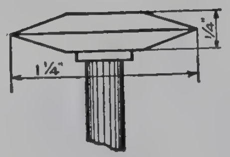

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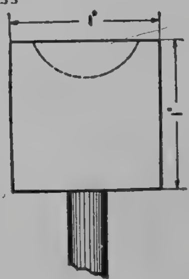

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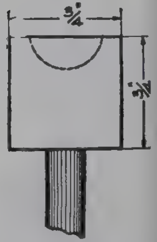


A 39

Shape No.	Vitrified Each	Resinoid Each	*Spindle Diameters, In.	Shape No.	Vitrified Each	Resinoid Each	*Spindle Diameters, In.
A 1	$3.80	$5.60	15/64, **1/4**	A23	$1.65	$3.40	15/64, **1/4**
A 2	2.30	4.00	15/64, **1/4**	A24	1.50	3.00	1/8, 3/16, 15/64, **1/4**
A 3	4.10	6.00	15/64, **1/4**	A25	1.80	3.50	15/64, **1/4**
A 4	2.60	4.30	15/64, **1/4**	A26	1.60	3.10	1/8, 3/16, 15/64, **1/4**
A 5	2.20	3.90	15/64, **1/4**	A31	2.20	4.00	15/64, **1/4**
A 6	2.20	3.90	15/64, **1/4**	A32	1.65	3.20	15/64, **1/4**
A11	2.80	4.50	15/64, **1/4**	A33	1.60	3.00	15/64, **1/4**
A12	2.20	3.90	15/64, **1/4**	A34	1.90	3.30	15/64, **1/4**
A13	2.60	4.30	15/64, **1/4**	A35	1.60	2.80	15/64, **1/4**
A14	1.65	3.40	15/64, **1/4**	A36	2.20	3.70	15/64, **1/4**
A15	2.10	3.80	1/8, 3/16, 15/64, **1/4**	A37	1.65	2.90	15/64, **1/4**
A21	1.80	3.50	15/64, **1/4**	A38	1.50	3.00	15/64, **1/4**
A22	1.60	3.10	15/64, **1/4**	A39	1.25	2.60	15/64, **1/4**
				A40	1.60	3.10	15/64, **1/4**

*Heavy face type indicates standard diameter.
†Only shapes A15, A24 and A26 are available in diameters and lengths indicated.

Spindles for Groupe A Shapes

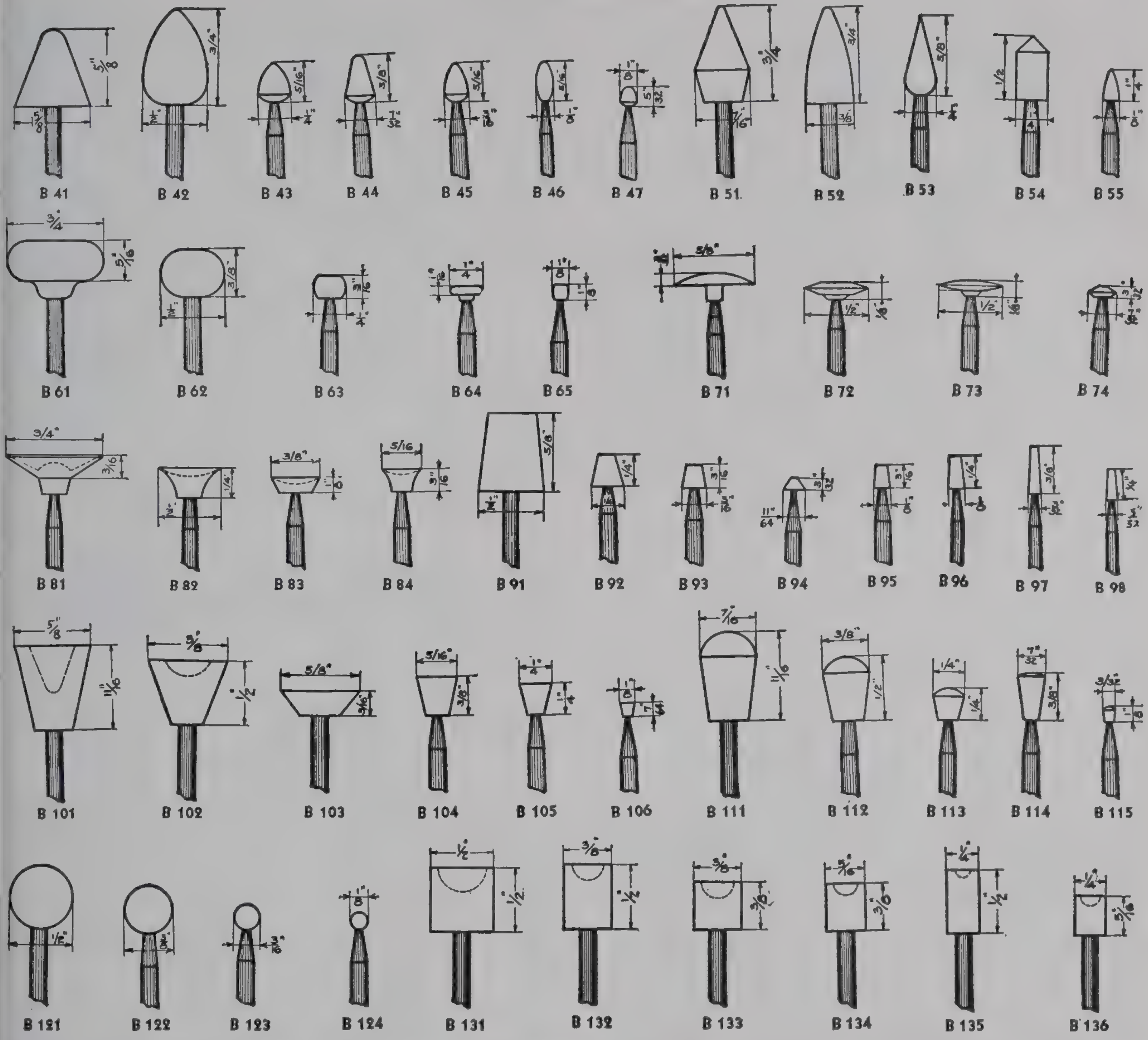
Standard Diameters and Lengths

Spindle Diam., In.	Lgth. In.
†1/8	1, 1½, †2½
†3/16	1, 1½, †2½
15/64	1½
1/4—20 N.C.R.H. Thread	1½
1/4	1½, 2½

Diameter refers to diameter of spindle outside of abrasive Length refers to length of spindle projection from base of abrasive plus or minus ⅛ inch. If spindle length is not specified, 1½-inch length furnished. Extra charge for spindle dimensions not shown in table.

Norton Mounted Points and Wheels

Group B—Special Shapes



Shape No.	Vitrified Each	Resinoid Each	*Spindle Diameters, Inches
B41	$1.60	$3.10	**1/8**, 3/16, 15/64, 1/4
B42	1.50	3.00	**1/8**, 3/16, 15/64, 1/4
B43	1.40	2.60	3/32, **1/8**
B44	1.40	2.60	3/32, **1/8**
B45	1.40	2.60	3/32, **1/8**
B46	1.40	2.60	3/32, **1/8**
B47	1.25	2.50	3/32, **1/8**
B51	1.50	3.00	**1/8**, 3/16, 15/64, 1/4
B52	1.50	3.00	**1/8**, 3/16, 15/64, 1/4
B53	1.50	3.00	3/32, **1/8**, 3/16
B54	1.40	2.80	**1/8**, 3/16, 15/64, 1/4
B55	1.25	2.50	3/32, **1/8**
B61	1.50	2.70	**1/8**, 3/16, 15/64, 1/4
B62	1.40	2.60	**1/8**, 3/16, 15/64, 1/4
B63	$1.25	$2.50	3/32, **1/8**
B64	1.25	2.50	3/32, **1/8**
B65	1.25	2.50	3/32, **1/8**
B70	1.40	2.60	3/32, **1/8**
B71	1.40	2.60	3/32, **1/8**
B72	1.25	2.50	3/32, **1/8**
B73	1.25	2.50	3/32, **1/8**
B74	1.25	2.50	3/32, **1/8**
B81	1.40	2.60	3/32, **1/8**, 3/16
B82	1.25	2.50	3/32, **1/8**
B83	1.25	2.50	3/32, **1/8**
B84	1.25	2.50	3/32, **1/8**
B90	1.40	2.80	**1/8**, 3/16, 15/64, 1/4
B91	1.50	3.00	**1/8**, 3/16, 15/64, 1/4
B 92	$1.25	$2.50	3/32, **1/8**
B 93	1.25	2.50	3/32, **1/8**
B 94	1.25	2.50	3/32, **1/8**
B 95	1.25	2.50	3/32, **1/8**
B 96	1.25	2.50	3/32, **1/8**
B 97	1.40	2.60	3/32, **1/8**
B 98	1.25	2.50	3/32, **1/8**
B101	1.60	3.10	**1/8**, 3/16, 15/64, 1/4
B102	1.50	2.90	**1/8**, 3/16, 15/64, 1/4
B103	1.40	2.60	**1/8**, 3/16, 15/64, 1/4
B104	1.40	2.60	3/32, **1/8**, 3/16
B105	1.25	2.50	3/32, **1/8**
B106	1.25	2.50	3/32, **1/8**
B111	1.50	3.00	**1/8**, 3/16, 15/64, 1/4
B112	$1.40	$2.80	3/32, **1/8**, 3/16
B113	1.25	2.50	3/32, **1/8**
B114	1.40	2.60	3/32, **1/8**
B115	1.25	2.50	3/32, **1/8**
B121	1.40	2.80	**1/8**, 3/16, 15/64, 1/4
B122	1.40	2.60	3/32, **1/8**, 3/16
B123	1.25	2.50	3/32, **1/8**
B124	1.25	2.50	3/32, **1/8**
B131	1.10	2.30	**1/8**, 3/16, 15/64, 1/4
B132	1.10	2.30	**1/8**, 3/16, 15/64, 1/4
B133	1.10	2.10	**1/8**, 3/16, 15/64, 1/4
B134	1.10	2.10	**1/8**, 3/16, 15/64, 1/4
B135	1.10	2.30	**1/8**, 3/16, 15/64, 1/4
B136	1.10	2.10	**1/8**, 3/16, 15/64, 1/4

*__Heavy face__ type indicates standard diameter.

Group B—Standard Diameters and Lengths of Spindles

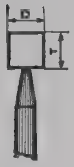
Diameter refers to diameter of spindle outside of abrasive. Length means length of spindle projection from base of abrasive plus or minus 1/8 inch. Mounted points with spindles of diameters and lengths shown below. If length not specified, 1½-inch furnished.

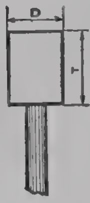
If spindle diameter is omitted, standard diameter shown in table above in **heavy face** type will be furnished. Threaded spindles are not commonly used in Group B points; price of threaded spindles on application only. Spindle dimensions other than shown above are extra.

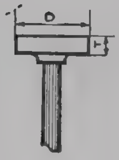
Spindle Diameter..............inches	3/32	1/8	3/16	15/64	1/4
Spindle Length..............inches	1, 1½, 2½	1, 1½, 2½	1, 1½, 2½	1½	1½, 2½

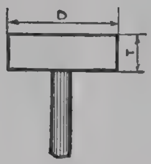
Norton Mounted Points and Wheels

Group W—Plain Shapes









Spindles for Group W Shapes

Standard Diameter and Lengths

Diameter refers to maximum diameter of spindle outside of abrasive. Length refers to length of spindle projection from base of abrasive plus or minus 1/8 inch.

Diam., Inches	Length, Inches	Diam., Inches	Length, Inches
3/32	1, 1½, 2½	**15/64**	1½
1/8	1, 1½, 2½	**1/4**—20 N.C.R.H. Thrd.	1½
3/16	1, 1½, 2½	**1/4**	1½, 2½

Available spindle diameters for each shape shown below. If spindle length is not specified, standard diameter indicated in **heavy face** type will be furnished.

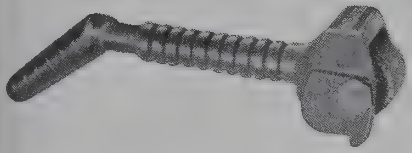
Extra charge will be made for spindle dimensions other than those shown in table above.

*__Heavy face__ type indicates standard diameters.

Shape No.	Vitrified Each	Resinoid Each	Size, In. Diam.	Size, In. Thickness	*Spindle Diameters Inches
W141	$1.00	$2.00	3/32	5/32	3/32, **1/8**
W142	1.00	2.00	3/32	1/4	3/32, **1/8**
W143	1.00	2.00	1/8	1/8	3/32, **1/8**
W144	1.00	2.00	1/8	1/4	3/32, **1/8**
W145	1.10	2.10	1/8	3/8	3/32, **1/8**
W146	1.10	2.30	1/8	1/2	3/32, **1/8**
W147	1.00	2.00	5/32	1/32	3/32, **1/8**
W148	1.00	2.00	5/32	1/16	3/32, **1/8**
W149	1.00	2.00	5/32	1/4	3/32, **1/8**
W150	1.00	2.00	3/16	1/16	3/32, **1/8**
W151	1.00	2.00	3/16	1/8	3/32, **1/8**
W152	1.00	2.00	3/16	1/4	3/32, **1/8**
W153	1.10	2.10	3/16	3/8	3/32, **1/8**
W154	1.10	2.30	3/16	1/2	3/32, **1/8**
W155	1.00	2.00	13/64	1/4	3/32, **1/8**, 3/16
W156	1.00	2.00	1/4	1/32	3/32, **1/8**, 3/16
W157	1.00	2.00	1/4	1/16	3/32, **1/8**, 3/16
W158	1.00	2.00	1/4	1/8	3/32, **1/8**, 3/16
W159	1.00	2.00	1/4	3/16	3/32, **1/8**, 3/16
W160	1.00	2.00	1/4	1/4	3/32, **1/8**, 3/16
W161	1.10	2.10	1/4	5/16	3/32, **1/8**, 3/16
W162	1.10	2.10	1/4	3/8	3/32, **1/8**, 3/16
W163	1.10	2.30	1/4	1/2	**1/8**, 3/16
W164	1.15	2.50	1/4	3/4	**1/8**, 3/16, 15/64, 1/4
W165	1.00	2.00	5/16	1/16	3/32, **1/8**, 3/16
W166	1.00	2.00	5/16	1/8	3/32, **1/8**, 3/16
W167	1.00	2.00	5/16	1/4	3/32, **1/8**, 3/16
W168	1.10	2.10	5/16	5/16	3/32, **1/8**, 3/16
W169	1.10	2.10	5/16	3/8	3/32, **1/8**, 3/16
W170	1.10	2.30	5/16	1/2	3/32, **1/8**, 3/16, 1/4
W171	1.15	2.50	5/16	3/4	3/32, **1/8**, 3/16, 1/4
W172	1.00	2.00	3/8	1/16	3/32, **1/8**, 3/16
W173	1.00	2.00	3/8	1/8	3/16, **1/8**, 3/16
W174	1.00	2.00	3/8	1/4	3/32, **1/8**, 3/16
W175	1.10	2.10	3/8	3/8	3/32, **1/8**, 3/16, 1/4
W176	1.10	2.30	3/8	1/2	3/32, **1/8**, 3/16, 1/4
W177	1.15	2.50	3/8	3/4	**1/8**, 3/16, 15/64, 1/4
W178	1.25	2.80	3/8	1	**1/8**, 3/16, 15/64, 1/4
W179	1.60	3.00	3/8	1¼	**1/8**, 3/16, 15/64, 1/4
W180	1.00	2.00	1/2	1/32	**1/8**, 3/16, 1/4
W181	1.00	2.00	1/2	1/16	**1/8**, 3/16, 1/4
W182	1.00	2.00	1/2	1/8	**1/8**, 15/64, 1/4
W183	1.00	2.00	1/2	1/4	**1/8**, 15/64, 1/4
W184	1.10	2.10	1/2	3/8	**1/8**, 15/64, 1/4
W185	1.10	2.30	1/2	1/2	**1/8**, 15/64, 1/4
W186	1.15	2.50	1/2	3/4	**1/8**, 15/64, 1/4
W187	1.25	2.80	1/2	1	**1/8**, 15/64, 1/4
W188	1.90	3.20	1/2	1½	15/64, **1/4**
W189	2.40	3.80	1/2	2	15/64, **1/4**
W190	1.10	2.10	5/8	1/16	**1/8**, 3/16, 15/64, 1/4
W191	1.10	2.10	5/8	1/8	**1/8**, 3/16, 15/64, 1/4
W192	1.10	2.10	5/8	1/4	**1/8**, 3/16, 15/64, 1/4
W193	1.15	2.20	5/8	3/8	**1/8**, 3/16, 15/64, 1/4
W194	$1.15	$2.40	5/8	1/2	**1/8**, 3/16, 15/64, 1/4
W195	1.25	2.60	5/8	3/4	**1/8**, 3/16, 15/64, 1/4
W196	1.40	2.90	5/8	1	15/64, **1/4**
W197	2.50	3.90	5/8	2	15/64, **1/4**
W198	3.10	4.60	5/8	2½	15/64, **1/4**
W199	1.10	2.10	3/4	1/16	**1/8**, 3/16, 1/4
W200	1.10	2.10	3/4	1/8	**1/8**, 3/16, 1/4
W201	1.10	2.10	3/4	1/4	**1/8**, 3/16, 15/64, 1/4
W202	1.15	2.20	3/4	3/8	**1/8**, 3/16, 15/64, 1/4
W203	1.15	2.40	3/4	1/2	1/8, 3/16, 16/64, **1/4**
W204	1.25	2.60	3/4	3/4	1/8, 3/16, 15/64, **1/4**
W205	1.40	2.90	3/4	1	15/64, **1/4**
W206	1.65	3.10	3/4	1¼	15/64, **1/4**
W207	2.00	3.30	3/4	1½	15/64, **1/4**
W208	2.50	3.90	3/4	2	15/64, **1/4**
W209	3.10	4.60	3/4	2½	15/64, **1/4**
W210	1.15	2.20	7/8	1/16	**1/8**, 3/16, 15/64, 1/4
W211	1.15	2.20	7/8	1/8	**1/8**, 3/16, 15/64, 1/4
W212	1.15	2.20	7/8	1/4	**1/8**, 3/16, 15/64, 1/4
W213	1.25	2.30	7/8	3/8	**1/8**, 3/16, 15/64, 1/4
W214	1.15	2.20	15/16	1/4	**1/8**, 3/16, 15/64, 1/4
W215	1.15	2.20	1	1/8	**1/8**, 3/16, 15/64, 1/4
W216	1.15	2.20	1	1/4	**1/8**, 15/64, 1/4
W217	1.25	2.30	1	3/8	15/64, **1/4**
W218	1.25	2.50	1	1/2	15/64, **1/4**
W219	1.40	2.70	1	3/4	15/64, **1/4**
W220	1.50	3.00	1	1	15/64, **1/4**
W221	2.10	3.40	1	1½	15/64, **1/4**
W222	2.60	4.00	1	2	15/64, **1/4**
W223	3.20	4.70	1	2½	15/64, **1/4**
W224	3.70	5.30	1	3	**3/8**
W225	1.40	2.40	1¼	1/4	15/64, **1/4**
W226	1.50	2.70	1¼	3/8	15/64, **1/4**
W227	1.50	2.80	1¼	1/2	15/64, **1/4**
W228	1.60	3.10	1¼	3/4	15/64, **1/4**
W229	1.80	3.40	1¼	1	15/64, **1/4**
W230	2.10	3.50	1¼	1¼	15/64, **1/4**
W231	2.50	3.80	1¼	1½	15/64, **1/4**
W232	3.10	4.40	1¼	2	15/64, **1/4**
W233	3.80	5.10	1¼	2½	**3/8**
W234	4.40	5.70	1¼	3	**3/8**
W235	1.50	2.50	1½	1/4	15/64, **1/4**
W236	1.60	2.90	1½	1/2	15/64, **1/4**
W237	1.90	3.50	1½	1	15/64, **1/4**
W238	2.60	3.90	1½	1½	15/64, **1/4**
W239	3.20	4.50	1½	2	**3/8**
W240	3.90	5.20	1½	2½	**3/8**
W241	4.50	5.80	1½	3	**3/8**
W242	2.40	4.00	2	1	**3/8**
W243	3.20	4.60	2	1½	**3/8**
W244	4.00	5.10	2	2	**3/8**
W245	4.80	5.70	2	2½	**3/8**
W246	5.60	6.20	2	3	**3/8**

Desmond Beltbrasive Dressers

For Coated Abrasives



Will remove loaded material adhering to belt face. A few dulled grains can be removed exposing new sharp grains. Used on all dry applications, also wet applications where belts load and become dull. May be used on various types and diameters of abrasive discs and pneumatic wheel coated abrasive grinders, also for some applications on back stand machines. May be used on abrasive belts regardless of position, upright or horizontal. Flexible tooth cutters. Face width, 1½ inches.

No. BCA-1, for use on coated abrasives of approximately number 200 through 300 grain size. No. BCA-2, for use on coated abrasives of approximately number 60 through 200 grain size.

Weight, complete dresser unit, 3 pounds; extra cutter unit, 4 ounces each.

No.	BCA-1	BCA-2
Complete Dresser Unit . . . each	**$6.75**	**$6.75**
Extra Cutter Unit . . . each	**4.00**	**4.00**
Cutter Diameter . . . inches	1⅝	1½

No. 21 Desmond Grinding Wheel Dressers

This dresser meets the need of a rapid acting dresser for medium diameter wheels. It uses a double set of No. 1 Desmond-Huntington cutters for wide faced wheels.

Length 11½ inches. Cutting face ⅞ inch.

Weight 2¼ pounds.

No. **21**, Complete	each	**$2.75**
Extra Cutters	per set	**.64**

Norbide Dressing Sticks

For Tool Wheels 10 Inches And Smaller

NORTON
NORBIDE
DRESSING STICK
NORTON COMPANY

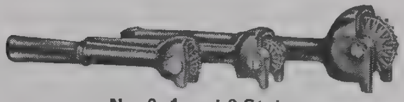
Used for tool wheels, especially cup and saucer shapes.
Molded, without bond, from Norton Boron carbide.
Rectangular in shape, 3⁄16x½x3 inches.
Packed 12 sticks in a box.

Each	**$5.00**

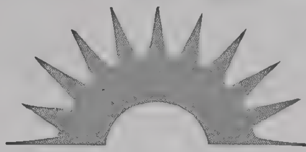
GRINDING WHEEL SERVICE

We have Grinding Wheel Engineers to help you solve your problems. Ask for their service.

Desmond-Huntington Grinding Wheel Dressers and Cutters



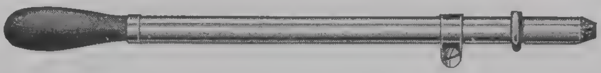
No. 0, 1 and 2 Style



No. 1 and 2 Style

No. **0**, For use on Wheels not over 10-In. in Diam. or 2-In. Face; Hooded, Complete	each	**$1.30**
Huntington Cutters, 1¼-In. Diam.	per set	**.20**
Paragon Cutters, 1¼-In. Diam.	per set	**.24**
No. **1**, For Wheels from 10 to 15 In. in Diam. or 3-In. Face; Hooded, Complete	each	**2.35**
Huntington Cutters 1½-In. Diam.	per set	**.32**
No. **2**, Used on Wheels over 16 In. in Diam. or 3-In. Face; Hooded, Complete	each	**3.90**
Huntington Cutters, 2⅜-In. Diam.	per set	**1.05**
No. **21**, Uses a Dbl. Set of No. 1 Cutters; for Med. Size Wheels of Wide Face; Hooded, Comp.	each	**2.75**
Huntington Cutters (Double Set of No. 1 Cutters)	per set	**.64**
No. **22**, Uses a Double Set of No. 2 Cutters; Hooded Complete	each	**5.25**
Huntington Cutters (Double Set of No. 2 Cutters)	per set	**2.10**
No. **5H**, Huntington Cutters, 1⅝-In. Diam., ⅜-In. Hole	per set	**.45**
Special, Huntington Cutters, 1⅝-In. Diam. ½-In. Hole	per set	**.45**

Desmond Diamo-Carbo Grinding Wheel Dressers



The dresser consists of a steel tube filled with an abrasive of such intense hardness that it will cut and dress any grinding wheel except the hard grade or the extremely coarse and large wheels used for grinding castings.

Abrasive wears away slowly.

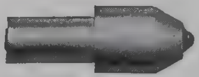
Will shape grinding wheel edges.

No.	3	5
Each	**$4.00**	**4.50**
Diameter . . . inches	⅝	⅝
Length . . . inches	10	12

Also made in ¼ and ⅜-inch diameter.

Desmond Diamond Nibs

For Landis Grinders



Made from cold rolled steel. Imparts a smooth accurate surface to precision work.

No.	1	3	5	7	9	11
Large No.	**1L**	**3L**	**5L**	**7L**	**9L**	**11L**
Each	**$6.60**	**15.60**	**24.60**	**35.80**	**40.00**	**60.00**
Recomm. Wheel Sizes . . . in.	6x½	8x¾	10x1	12x1½	14x2	18x2½

Desmond Diamond Nibs for Norton Grinders

No.	2	4	6	8	10	12
Each	**$6.60**	**15.60**	**24.60**	**35.80**	**40.00**	**60.00**
Recomm. Wheel Sizes . . . in.	6x½	8x¾	10x1	12x1½	14x2	8x2½

Norton India Oilstones

Every requirement of edge tool users is met with this line of stones.

India Oilstones are made of Norton Alundum abrasive—a hard, sharp, quick-cutting electric furnace product of great purity.

The first thing, of course, to consider is the purposes for which the stone is to be used—whether a fast cutting stone will be more useful than a slow-cutting stone that gives a finer edge.

This question answers itself as soon as you know, first, that the coarser grit a stone has the faster it cuts and, second, that cutting edges are classed in three groups—coarse, medium, and fine, and are made in all required shapes for regular and special work.

Coarse stones are indispensable in machine shops for sharpening dull or nicked tools, machine knives and for general use where fast cutting is desired.

Medium stones are used for sharpening mechanics' tools in general, more particularly those used by carpenters and woodworking establishments. The medium grit gives a medium fine edge, cuts with great rapidity, never glazes, and wears uniformly.

Fine stones are adapted for engravers, die workers, cabinet-makers and all users of tools requiring a fine, keen edge.

India stones may be used with a high degree of satisfaction on all classes of work.

All India Stones are oil filled by a patented process, a feature which insures a moist, oily sharpening surface, with the use of only a small quantity of oil. It also insures a good cutting surface.

Special Shapes for Special Purposes

For chisels, plane bits, planer knives, scrapers, paper cutting knives, and all tools with broad flat edges: Bench and Combination Stones.

For reamers, dies, silversmiths', watch, clock and instrument makers' tools, and shoe machine tools, such as barber undertrimmers, welt awls, etc.: Square, Round and Triangular Files.

For reamers: Reamer Stones.

For molder knives, bead planers, channel knives gouges, auger bits, instrument makers' tools, and all curved cutting edges: Round Files, Round Edge Slips, Taper Rounds and Triangles.

For all engravers' tools, and for marking metals: Engravers' Pencil.

For fine mold and die work, silversmiths', watch, clock and fine instrument makers' tools: Round and Square Files, Diamonds, Points, Knife Blades and Silversmiths' Stones.

For wood and ivory carvers' tools: Nos. 12, 22, 32 and 42.

Certain shapes are found particularly valuable in machine shops. For reamers, No. 124; for taps, Round Edge Slips. For dies, all small India shapes.

Practically every shape can be used to advantage in the tool room. For ordinary scraping tools, Nos. 8 and 7. Fine grits are used for frosting or fancy scraping.

Special shapes found valuable in shoe shops are Bench Stones, Round Edge Slips, Reamer Stones, Skiving Knife Stones, Diamonds, Points and Knife Blades.

Norton Crystolon Combination Oilstones

Crystolon
OILSTONE
BEHR-MANNING
TROY, N.Y.
NORTON Abrasives

Two grits, coarse and fine, vitrified together—not glued. Coarse side is for dull tools and fine side for a finished edge.

Packed 6 in a standard package.

No.	JB64	JB134	JB45	JB6	JB7	JB8
Each	$3.20	2.00	2.70	3.20	3.50	3.80
Size..... in.	4x1 Round	4x1¾x⅝	5x2x¾	6x2x1	7x2x1	8x2x1
Wt. per Std. Pkg....lb.	6¼	2½	3¾	6	6¾	8¼

Norton Crystolon Round Edge Slips

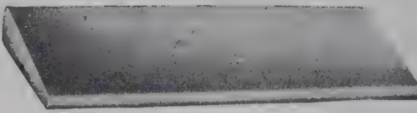
NORTON ABRASIVES
CRYSTOLON
OILSTONE

Used in woodturning plants and by carpenters and general woodworkers on gouges, knives and all tools with curved edges.

Made from Norton Crystolon abrasive, (silicon carbide), and oil-saturated at the factory. Designed for use either dry or with additional moderate applications of oil.

Fine No.	Medium No.	Coarse No.	Each	Size Inches	Std. Pkg.	Wt., Lb. Std. Pkg.
FJS14	MJS14	CJS14	$1.20	4 x1 x7/16x3/16	6	¾
FJS24	MJS24	CJS24	1.50	4½x1¾x¼x1/16	6	1
FJS34	MJS34	CJS34	1.50	4½x1¾x⅜x⅛	6	1¼
FJS44	MJS44	CJS44	1.50	4½x1¾x½x3/16	6	1¾
FJS15	MJS15	CJS15	1.50	5 x1 x5/16x3/32	6	½
FJS54	MJS54	CJS54	2.00	4½x2⅛x⅝x5/16	6	2¼
FJS66	MJS66	CJS66	3.00	6 x2¼x¾x⅜	6	4

Norton Arkansas Round Edge Slips

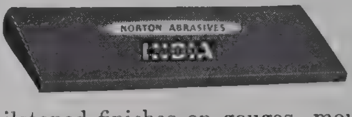


Produces the finest oilstoned finish on curved edges and surfaces and is a necessity in woodturning plants and in making precision tools.

Regular Sizes

Hard No.	Hard Each	Soft No.	Soft Each	Approx. Size, In.	Std. Pkg.	Pkg. Wt. Oz.
HS3	$4.00	SS3	$2.00	3x1¾–2x¼–⅜x1/16–⅛	3	7½
HS4	4.50	SS4	2.50	4x1¾–2x⅜–½x⅛–3/16	3	12
HS5	5.50	SS5	3.00	5x1¾–2x⅜–½x⅛–¼	3	13½
Small Sizes						
HS13	$2.50	SS13	$1.30	3x1¼–1½x¼–⅜x⅛-Sharp	3	6
HS14	3.50	SS14	1.70	4x1¼–1½x¼–⅜x⅛-Sharp	3	7½
HS15	4.00	SS15	2.00	5x1¼–1½x¼–⅜x⅛-Sharp	3	8

Norton India Round Edge Slips

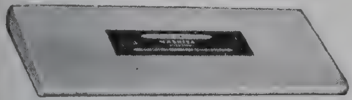


Produces oilstoned finishes on gouges, moulder knives, bead planers, and other tools and knives with curved edges.

Made from Norton Alundum abrasive (aluminum oxide).

Fine No.	Medium No.	Coarse No.	Each	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
FS14	MS14	CS14	$1.20	4 x1 x7/16x3/16	6	¾
FS24	MS24	CS24	1.50	4½x1¾x¼x1/16	6	1
FS34	MS34	CS34	1.50	4½x1¾x⅜x⅛	6	1¼
FS44	MS44	CS44	1.50	4½x1¾x½x3/16	6	1¾
FS15	MS15	CS15	1.50	5 x1 x5/16x3/32	6	½
FS54	MS54	CS54	2.00	4½x2⅛x⅝x5/16	6	2¼
FS66	MS66	.....	3.00	6 x2¼x¾x⅜	6	4

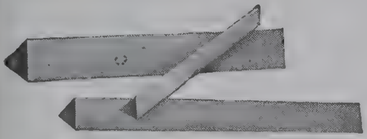
Norton Washita Round Edge Slips



Gives a keen edge on gouges and all curved cutting edges.

No.	Each	Approx. Size, In.	Std. Pkg.	Wt. Lb. Std. Pkg.
WS3	$1.50	3x1¾–2x⅜–½x⅛–¼	12	1⅞
WS4	1.70	4x1¾–2x⅜–½x⅛–¼	12	2½
WS5	2.00	5x1¾–2x⅜–½x⅛–¼	12	3⅜

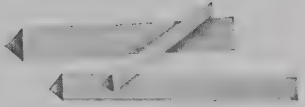
Norton India Triangular Files



For cleaning corners of dies where some stock is to be removed without scratching.

Fine No.	Medium No.	Coarse No.	Each	Size Inches	Std. Pkg.	Wt., Oz. Std. Pkg.
FF114	MF114	CF114	$1.15	4x¼	12	3
FF124	MF124	CF124	1.25	4x5/16	12	4
FF134	MF134	CF134	1.25	4x⅜	12	5
FF144	MF144	CF144	1.25	4x½	12	9
FF136	MF136	CF136	1.65	6x⅜	12	8
FF146	MF146	CF146	1.65	6x½	12	14
FF156	MF156	CF156	1.75	6x⅝	6	10
FF166	MF166	CF166	1.75	6x¾	6	16
FF176	MF176	CF176	1.85	6x1	6	24

Norton Hard Arkansas Square and Triangular Files

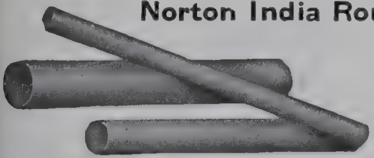


Used where work calls for an accurate finish.

Square			Triangular				
No.	Each	Wt., Oz. Std. Pkg.	No.	Each	Wt., Oz. Std. Pkg.	Approx. Size, In.	Std. Pkg.
HF 3	$1.80	8	HF103	$1.80	4	*3–3½x¼–⅜	12
HF13	1.80	4½	HF113	1.80	2½	3–3½x¼	12
HF23	2.00	8	HF123	2.00	4	3–3½x5/16	12
HF33	2.00	9	HF133	2.00	5	3–3½x⅜	12
HF43	2.00	16	HF143	2.00	8	3–3½x½	12

*Assorted.

Norton India Round Files

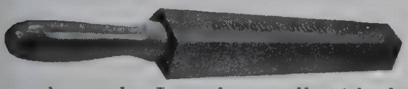


Used for lapping round holes and for stoning dies and cleaning moulds.

Used also on many curved edges.

Fine No.	Medium No.	Coarse No.	Each	Size Inches	Std. Pkg.	Wt. Oz. Std. Pkg.
FF214	MF214	CF214	$1.40	4x¼	12	6
FF224	MF224	CF224	1.50	4x5/16	12	6
FF234	MF234	CF234	1.50	4x⅜	12	9
FF244	MF244	CF244	1.50	4x½	12	16
FF236	MF236	CF236	1.85	6x⅜	12	16
FF246	MF246	CF246	1.85	6x½	12	24
FF256	MF256	CF256	2.00	6x⅝	6	16
FF266	MF266	CF266	2.00	6x¾	6	24
FF276	MF276	CF276	2.10	6x1	6	48

No. JD2 Norton Crystolon Utility Files



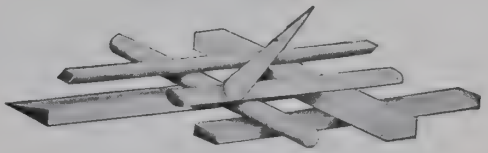
For sharpening mower sections, spades and shovels, and for smoothing rough metals. Length overall, 14 inches.

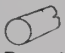
Packed 4 in a container, 1 mounted on a card. Standard package consists of 3 containers; weight per dozen, 19 pounds.

No. JD2.................................per dozen **$30.00**

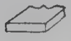
Norton Hard Arkansas Files

Miscellaneous Files

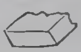




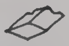
Round



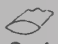
Flat



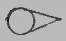
Bevel



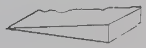
Diamond



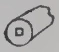
Oval



Point



Knife Blade



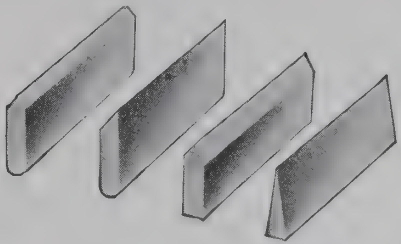
Engravers' Pencil

Used where the work calls for an accurate finish.

No.	Each	Shape	Size Inches	Std. Pkg.	Wt. Oz. Std. Pkg.
HF813	$2.20	Round.........	3–3½x¼–5/16	12	5
HF823	2.90	Flat...........	3–3½x⅜–½x⅛–3/16	12	7
HF833	1.90	Bevel..........	3–3½x⅜–½x⅛–3/16	12	7
HF843	3.40	Diamond......	3–3½x½x3/16–¼	12	5
HF853	2.90	Oval...........	3–3½x½x3/16–¼	12	5
HF863	3.40	Point..........	3–3½x¼ Base	12	2
HF873	2.70	Knife Blade....	3–4 x¾–1x⅛–¼	12	.8
AT17	2.50	Engravers' Pencil	7 Long. Stone ⅛ Sq.	12	6

Exact sizes, within dimensions shown, 25 per cent extra. Exactly 4 inches long, 50 per cent extra.

Norton Hard Arkansas Carving Tool Slips



A set of these slips enables a wood or ivory carver to keep all sizes and sweeps of straight and bent gouges in perfect condition.

No.	Each	Size, Inches	Std. Pkg.	Wt. Oz. Std. Pkg.
AS12	$1.90	2¼x⅞x3/16	6	3½
AS22	1.90	2¼x⅞x3/16	6	3½
AS32	1.90	2¼x⅞x3/16	6	3½
AS42	1.90	2¼x⅞x3/16	6	3½

Soft supplied on special orders.

Norton Alundum and Crystolon Sticks

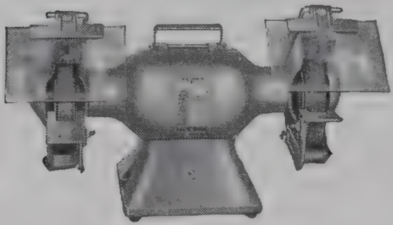
For truing and dressing grinding wheels. Sticks of both abrasives find a large and varied use in industrial plants. For honing square and triangular holes and for touching up jigs, dies and tools. Also for cleaning and polishing glass moulds, and for smoothing up enamel ware.

Furnished unfinished unless finished sticks are specified.

	Round		Square		
Size..................inches	4x½	6x½	4x½	8x1	9x1
Unfinished.............each	$1.05	1.25	.80	1.65	1.85
Finished...............each	1.50	1.85	1.05	2.10	2.35

Baldor Electric Grinders and Grinder-Buffers

Bench Type
With Capacitor Type Motor



Series 600 Deluxe Grinder

Ball bearing—precision built for precision work.

Armatures are dynamically balanced, with latest electronic equipment. Wheels are equipped with balancing flanges for smooth, vibrationless operation.

Prices for grinders include two grinding wheels, one 36 and one 60-grit. Prices for grinder-buffers include one grinding wheel and one wire wheel.

Series 600

Wheel—6-Inch Diameter, ¾-Inch Face, ½-Inch Bore

Grinders			Grinder-Buffers								
No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Hp.	Frame	RPM.	Volts	Ph.	Cy.
620	$49.00	36	670	$49.00	34	⅓	1120C	3450	115	1	60
622	51.00	36	672	51.00	34	⅓	1120C	3450	230	1	60

Wheel—6-Inch Diameter, ⅝-Inch Face, ½-Inch Bore

No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Hp.	Frame	RPM.	Volts	Ph.	Cy.
619	$45.00	34	669	$45.00	32	¼	1116C	3450	115	1	60

Series 600 DeLuxe

Wheel—6-Inch Diameter, ¾-Inch Face, ½-Inch Bore

No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Hp.	Frame	RPM.	Volts	Ph.	Cy.
623	$59.00	42	673	$59.00	40	⅓	1120C	3450	115	1	60
624	61.00	42	674	61.00	40	⅓	1120C	3450	230	1	60

Wheel—6-Inch Diameter, ⅝-Inch Face, ½-Inch Bore

No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Hp.	Frame	RPM.	Volts	Ph.	Cy.
625	$50.00	36	675	$50.00	34	¼	1116C	3450	115	1	60

Prices include two eye shields on grinders and one on the grinder-buffers.

Series 7300

Wheel—7-Inch Diameter, 1-Inch Face, ⅝-Inch Bore

No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Hp.	Frame	RPM.	Volts	Ph.	Cy.
7300	$82.00	75	7350	$80.00	67	½	4620C	3450	115	1	60
7301	86.00	75	7351	84.00	67	½	4620C	3450	230	1	60
*7302	78.00	75	*7352	76.00	67	½	4620C	3450	220/440	3	60
7125	99.50	75	....	.....	67	½	153D	3450	115	D.C.	
7126	104.00	75	....	.....	67	½	153D	3450	230	D.C.	

Series 8100

Wheel—8-Inch Diameter, 1-Inch Face, ¾-Inch Bore

No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Hp.	Frame	RPM.	Volts	Ph.	Cy.
8100	$99.00	105	8150	$96.00	100	½	182C	1725	115	1	60
8101	103.00	105	8151	100.00	100	½	182C	1725	230	1	60
*8122	95.00	105	*8172	92.00	100	½	182M	1725	220/440	3	60
8107	103.00	105	8157	100.00	100	¾	182C	3450	115	1	60
8108	108.00	105	8158	105.00	100	¾	182C	3450	230	1	60
*8123	99.00	105	*8173	96.00	100	¾	182M	3450	220/440	3	60

Series 8200

Wheel—8-Inch Diameter, 1-Inch Face, ¾-Inch Bore

No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Hp.	Frame	RPM.	Volts	Ph.	Cy.
8200	$94.00	89	8250	$91.00	74	½	153C	3450	115	1	60
8201	98.00	89	8251	95.00	74	½	153C	3450	230	1	60
*8202	90.00	89	*8252	87.00	74	½	153M	3450	220/440	3	60

Series 100

Wheel—10-Inch Diameter, 1-Inch Face, ⅞-Inch Bore

No.	Each	Hp.	Frame	RPM.	Volts	Ph.	Cy.	Ship. Wt. Lb.
1024	$162.00	1	20C2	1725	115	1	60	185
1025	162.00	1	20C2	1725	230	1	60	185
101	162.00	1½	20M2	1725	220	3	60	185
*1018	157.00	1½	20M2	1725	220/440	3	60	185
*105	157.00	1½	20M2	1725	550	3	60	185

Series 10-Inch

Wheel—10-Inch Diameter, 1-Inch Face, ⅞-Inch Bore

No.	Each	Hp.	Frame	RPM.	Volts	Ph.	Cy.	Ship. Wt. Lb.
*1021	$129.00	1	183M	1725	220/440	3	60	145
1022	134.00	¾	183C	1725	115	1	60	145
1023	134.00	¾	183C	1725	230	1	60	145

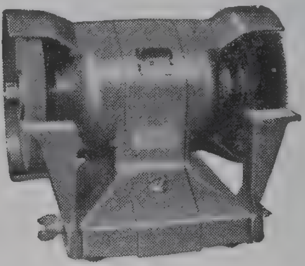
*Furnished less start and stop switch.

For No. GA-12 separate 3 pole switch, rated 575 volts, 10 amperes at 220 volts, add $9.90.

Black & Decker 6-Inch Standard Ball Bearing Electric Grinders

Bench Type

¼ Hp., 115 or 220 Volts, Single Phase, A.C.



For practical shop use.

Spindle mounted on permanent, lubricant-sealed ball bearings. Tool rests are adjustable for wheel wear.

Wheel 6 inches in diameter, with ⅝-inch face and ½-inch hole.

Spindle length overall, 12 inches. Height overall, 8$\frac{13}{16}$ inches. Height to center-line of spindle, 5⅝ inches.

Standard Equipment: 3-conductor cable and plug; toggle switch in base; 4-rubber feet; 2 wheel guards; 2 tool rests; 1 medium grinding wheel; 1 wire wheel brush.

Shipping weight, 28 pounds.

When ordering, specify voltage, phase and cycle.

No.	595	595	596
Cycles	60	50	25
Rpm	3600	3000	1500
Each	$58.00	58.00	58.00

No. 18614 Metal End Cover..........................each $1.00

Cincinnati General Purpose Electric Grinders

Floor Type

A.C.—For 220–440 or 550 Volts—50 or 60 Cycles—2 or 3 Phase

Fully enclosed motor. Sealed type ball bearings. Fully enclosed adjustable wheel guards. Extra heavy pedestal.

Push button starter with overload protection.

Large tool tray and water pot.

Load speed, 1750 rpm.

Grinding wheels not furnished.

No.	Each	Hp.	Recommended Wheel Size, In.	Diam. Shaft Between Flanges Inches	Dist. Between Wheels Inches	Ht. to Ctr. of Spindle Inches	Ship. Wt. Lb.
GPTA	$305.00	2	12x2	1¼	21	39	400
GPCA	349.00	3	14x2½	1¼	21¼	39	440
GPEA	435.00	5	14x3	1¼	22¼	39	470

For odd frequencies, prices on application.

Delta Carbide Tool Grinders

Made in bench and pedestal models. Bench model can be made into pedestal model by bolting it to cast iron pedestal.

Reversing type motor with self-sealed ball bearings is in head. Manually operated brakes on each wheel. Two 1x6-inch steel backed silicon carbide wheels, with a 1-inch face, and a 1¼-inch hole, are furnished, one of 60 grit and one 120 grit. Speed is 3450 rpm. with surface speed of 5200 fpm. Takes standard diamond wheels.

Tables are 13x7 inches. Tilt 30 degrees toward wheel and 45 degrees away from wheel and have ½x3/16-inch groove.

Sliding gage with a tilting head, heavy cast iron water pot with stop cock and copper tube, and adjustable light are furnished standard with grinder.

When manual starter with overload protection is desired for 3-phase or d.c. motors, No. 1320 manual starter can be used.

Bench Model			Pedestal Model			Motor		
No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	Volts	Cycles	Speed RPM.
Single-Phase Grinders with 6-Pole Switch								
23-505	**$179.00**	140	**23-555**	**$204.00**	211	115	60	3450
23-506	**179.00**	140	**23-556**	**204.00**	211	115	50	2850
23-507	**179.00**	140	**23-557**	**204.00**	211	230	60	3450
23-508	**179.00**	140	**23-558**	**204.00**	211	230	50	2850
Three-Phase Grinders with 6-Pole Switch								
23-510	**$184.00**	140	**23-560**	**$209.00**	211	208–220 440	50 60	2850 3450
Direct-Current Grinders with 6-Pole Switch								
23-515	**$194.00**	140	**23-565**	**$219.00**	211	115	..	3450
23-516	**194.00**	140	**23-566**	**219.00**	211	230	..	3450

Majestic Drill Sharpeners

With Automatic Dial Control

Attains accuracy greater than any human hand or arm or sight is able to do in measuring the angles and clearances on a twist drill. Fits any grinder. Easily adjusted for grinding drills to cut hard or soft material. Precision built, each unit individually calibrated and tested. For special applications, more or less can be cut off the heel of the drill by properly setting the control dial. Instructions for such adjustments are printed on the dial face.

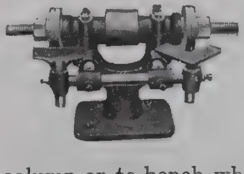
Sharpens straight or No. 2 taper shank drills. Sharpens all drill sizes from 5/32 to 1 inch accurately.

Grinds both cutting edges and both angles exactly alike. Sharpener is automatically set for the correct grinding angle. Drill rests in a channel and is easily held in proper position as operator swings channel up and down in a vertical arc on its pivot.

The drill holder is made up of 1x1x⅛-inch steel angle with other steel components welded thereto.

Complete with Bolts and Brackets	each	**$13.50**

No. 2 Clizbe Standard Pattern Grinders



Built with babbitted bearings.

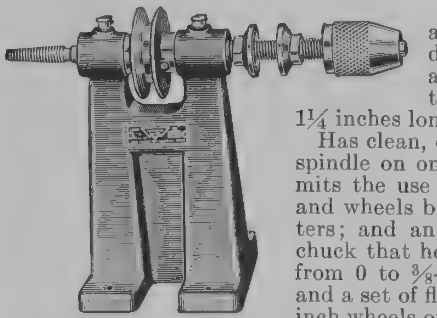
Fitted with tool rests of knuckle-jointed type.

Dustproof bearings fitted with nickel-plated oil cups.

Guards of cast iron open face type, and attach to top plate of column or to bench when column is not used.

No.		2
Head Only	each	**$11.65**
Wheel Size	inches	8x1¼
Length Spindle	inches	14
Diameter Spindle in Bearing	inches	⅞
Diameter Spindle on End	inches	¾
Size Pulley	inches	2⅜x2
Distance Between Wheels	inches	8
Height to Center of Spindle from Table	inches	6¼

No. 125 Millers Falls Grinding Heads



Solid frame and ample base. Spindle is ½-inch in diameter and runs in two Oilite bearings 1¼ inches long.

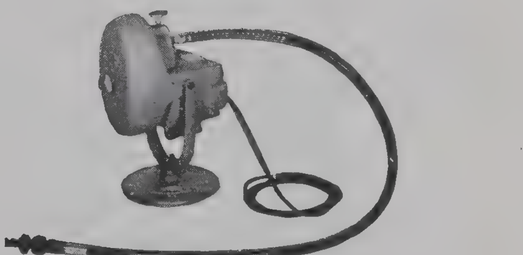
Has clean, deep taper thread spindle on one end which permits the use of buffing wheels and wheels built on wood centers; and an all-steel 3-jawed chuck that holds rods or drills from 0 to ⅜-inch in diameter and a set of flanges for 4x¾x½-inch wheels on the others.

Height, 6 inches. Size base, 4⅛x4⅛ inches.

Weight, 5 pounds.

No. **125**	each	**$5.80**

Model P40 Stow Speedflex Flexible Shaft Machines



For convenient bench mounting. Variable speed; quick speed changes with eccentric countershaft. Precision ball-bearing handpiece with ½-inch diameter detachable wheel arbor; universal tilting and swiveling for range and freedom of action. Streamlined guard for safety.

Motor, ½ hp.; 110/220 volts, to be specified; 60 cycles; single phase. Flexible shaft, .40 inch by 6 feet. Speeds, 1725, 2700, 4450, or 6900 rpm.

Grinding wheel capacity, 4x1 inches. Drilling capacity, ¼ inch. Sanding disc capacity, 7 inches in diameter.

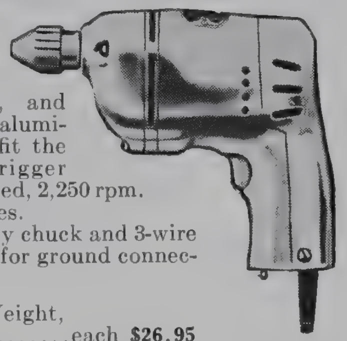
Attachments: No. 6857-502 angle head; No. 6961-502 combination handpiece. No. 8355-501 collet handpiece.

Shipping weight, 76 pounds.

No. **6872-602**, 110 Volts	each	**$171.60**
No. **6872-603**, 220 Volts	each	**171.60**
No. **6857-502**, Angle Head	each	**39.37**
No. **6961-501**, Combination Handpiece	each	**13.97**
No. **8355-501**, Collet Handpiece	each	**20.00**

¼-Inch Black & Decker Portable Electric Drills

Universal Motor, A.C. and D.C.—For 115 Volts



Drills holes up to ¼ in. in steel and other metals, wood, and composition materials.

Sturdy gears, pinions, and bearings; light die-cast aluminum housings shaped to fit the hand; instant-release trigger switch. No load spindle speed, 2,250 rpm.

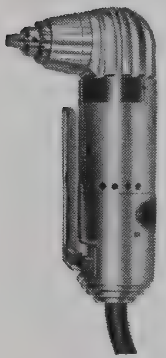
Length overall, 7⅝ inches.

Std. equip.; 3-jaw hex-key chuck and 3-wire cable and plug (third wire for ground connection).

Cat. No. **U-1**, Complete; Weight, 3 Lb.	each	**$26.95**
Cat. No. **U-3**, Complete with Geared Chuck	each	**28.95**

¼-Inch Black & Decker Shorty Drills

Universal Motor, A.C. and D.C.—For 115 or 220 V.



No. 287

Capacity: in steel, up to ¼ inch; in hardwood, up to ½ inch. For small unit production and assembly operation.

Ball bearings. No load speeds: 2500 rpm., with 3700 or 5000 rpm. optional. Full load speed, 1600 rpm. Overall length: working (spindle), 4½ inches; direction of motor, 8¾ inches.

Standard equipment: geared threaded chuck and key; 3-conductor cable and plug; removable end cap.

No. 298 Toggle switch in endcap on special order only.

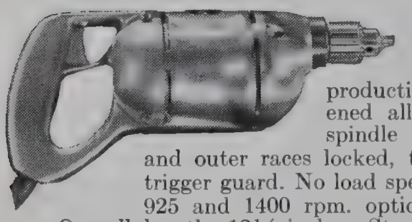
Net weight, 3⅞ pounds; shipping weight, 5¼ pounds.

Specify voltage.

Cat. No. **287**, With Paddle Switch	each	**$75.00**
Cat. No. **287-3**, 3700 RPM	each	**75.00**
Cat. No. **287-5**, 5000 RPM	each	**75.00**
Cat. No. **298**, With Toggle Switch	each	**75.00**
Cat. No. **298-3**, 3700 RPM	each	**75.00**
Cat. No. **298-5**, 5000 RPM	each	**75.00**

5/16-Inch Heavy Duty Black & Decker Portable Electric Drills

Universal Motor, A.C. and D.C.—For 115 or 220 Volts



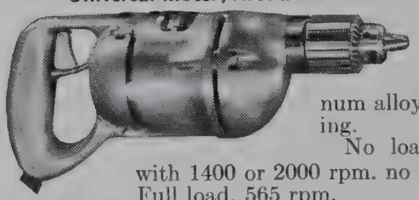
Capacity: in steel, 5/16 inch; in hardwood, ⅝ inch. For continuous production work. Has hardened alloy steel gears, ball spindle bearing with inner and outer races locked, threaded chuck and trigger guard. No load speed, 1400 rpm., with 925 and 1400 rpm. optional. Full load, 925 rpm. Overall length, 12⅛ inches. Standard equipment: 3-3-conductor cable and plug, 3-jaw geared chuck, automatic release switch and locking pin, and grip handle.

Net weight, 6¾ pounds. Shipping weight, 8¼ pounds. Specify voltage.

Cat. No. **360**, Geared Chuck	each	**$61.00**
Cat. No. **360-2**, 2000 RPM	each	**61.00**
Cat. No. **360-9**, 900 RPM	each	**61.00**
Cat. No. **387**, Keyless Chuck and Patented Locking Pin	each	**66.00**
Cat. No. **387-2**, 2000 RPM	each	**66.00**

No. 490 ⅜-Inch Standard Black & Decker Portable Electric Drills

Universal Motor, A.C. and D.C.—For 115 or 220 Volts



Capacity: in steel, ⅜-inch; in hardwood, ⅝-inch.

Die-cast aluminum alloy housing. Ball bearing.

No load speed, 900 rpm., with 1400 or 2000 rpm. no load speeds optional. Full load, 565 rpm.

Overall length, 12½ inches.

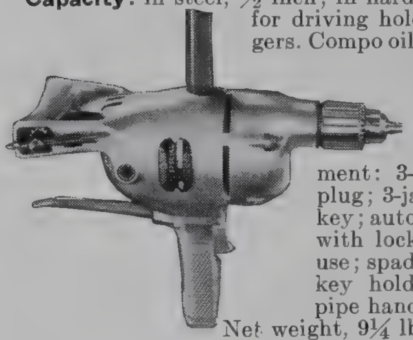
Standard equipment includes: 3-jaw geared threaded chuck and key; automatic-release trigger switch with locking pin; 3-wire cable and plug.

Net weight, 7¼ pounds; shipping weight, 8 pounds.

Cat. No. **490**, Specify Voltage	each	**$63.00**
Cat. No. **490-1**, 1400 RPM	each	**63.00**
Cat. No. **490-2**, 2000 RPM	each	**63.00**

No. 38 ½-Inch Special Black & Decker Portable Electric Drills

Universal Motor, A.C. and D.C.—For 115 or 220 Volts



Capacity: in steel, ½ inch; in hardwood, 1 inch. Ideal for driving hole saw and wood augers. Compo oil-less spindle bearing.

No load speed, 375 rpm.; full load, 260 rpm. Overall length, 13½ inches.

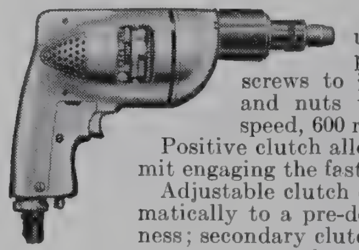
Standard equipment: 3-conductor cable and plug; 3-jaw geared chuck and key; automatic-release switch with locking pin for optional use; spade handle with chuck key holder; and detachable pipe handle.

Net weight, 9¼ lb.; ship. wt., 11¾ lb.

Cat. No. **38**, Specify Voltage	each	**$54.50**

No. 12 Black & Decker Portable Electric Scruguns

Universal Motor, A.C. and D.C.—For 115 or 220 Volts



Capacity: Wood screws up to No. 12x2 in.; self-tapping screws to ¼ in.; lag screws to 3/16x2 in.; machine screws and nuts to ¼-in. diam. No load speed, 600 rpm.; optional, 1000 rpm.

Positive clutch allows spindle to idle to permit engaging the fastener.

Adjustable clutch drives each fastener automatically to a pre-determined, uniform tightness; secondary clutch disengages when resistance overcomes its pre-set spring load.

Standard equipment: 3-wire cable and plug; No. 15475 bit with protector, centering and spring sleeves.

	Positive		**Adjustable**	
	Std.	**Reversing Switch**	**Std.**	**Reversing Switch**
Cat. No.	**402**	**572**	**350**	**573**
Specify Voltage . . . each	**$68.00**	**75.50**	**83.00**	**90.50**
Overall Lgth. Incl. Bit . . . in.	9	9	10¾	10¾
Net Wt. . . . lb.	3¾	3¾	4	4
Shipping Wt. . . . lb.	5	5	5½	5½

On special order, 125 or 240 volts.

Black & Decker Electric Tools

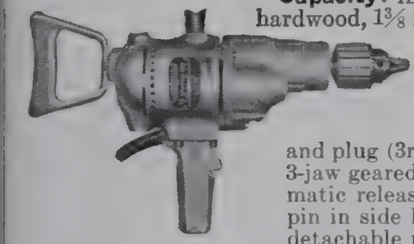
We carry a well assorted stock of Electric Drills, Grinders, etc.

Write us about any items in which you are interested.

BLACK & DECKER PRODUCTS STOCKED IN FORT WAYNE ONLY

No. 238 ⅝-Inch Standard Black & Decker Portable Electric Drills

Universal Motor, A.C. and D.C.—For 115 or 220 Volts



Capacity: in steel, 5/32 to ⅝ inch; in hardwood, 1⅜ inches. No load speed, 300 rpm.; full load, 200 rpm. Overall length, 18 inches.

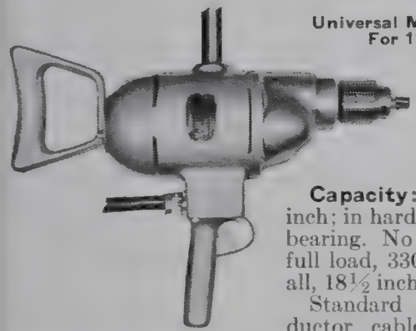
Standard equipment: 3-wire cable and plug (3rd wire for grounding); 3-jaw geared chuck and key; automatic release switch with locking pin in side handle; spade handle; detachable pipe handle. Optional equipment: No. 2 Morse taper socket in place of chuck. No extra charge.

Net Weight, 17 pounds; shipping weight, 21¾ pounds.

Cat. No. **238**, Specify Voltage.................each **$100.00**

Black & Decker Heavy Duty Portable Electric Drills

Universal Motor, A.C. and D.C.
For 115 or 220 Volts



½-Inch

Capacity: drilling in steel, ½-inch; in hardwood, 1¼-inch. Ball bearing. No load speed, 500 rpm., full load, 330 rpm. Length overall, 18½ inches.

Standard equipment: 3 conductor cable with plug, 3-jaw geared chuck with key, automatic-release switch with locking pin for optional use, space handle, detachable pipe handle. Net wt., 17 lb.; ship. wt., 19½ lb.

Cat. No. **40**, Specify Voltage..................each **$95.00**
Cat. No. **575** Reversing Switch Unit,
Specify Voltage............................each **105.00**

⅝-Inch

Capacity: drilling in steel, 5/32 to ⅝ inch; hardwood, 1⅝ inches. Ball bearing. No load speed, 450 rpm.; full load, 320 rpm. Length overall, 20 inches.

Standard equipment: same as the ½-inch drill.

Net weight, 21¼ pounds; shipping weight, 27¾ pounds.

Cat. No. **42**, Specify Voltage................each **$125.00**
Cat. No. **576** Reversing Switch Unit,
Specify Voltage............................each **135.00**

¾-Inch

Capacity: drilling in steel, 3/16 to ¾ inch; in hardwood, 2 inches. Ball bearing. No load speed, 375 rpm.; full load, 280 rpm. Length overall, 21 inches.

Standard equipment: same as the ½-inch drill.

Net weight, 27¼ pounds; shipping weight, 34 pounds.

Cat. No. **45**, Specify Voltage................each **$135.00**
Cat. No. **555** Reversing Switch Unit,
Specify Voltage............................each **145.00**

1-Inch

Capacity: Drilling in steel, 1 inch; with 3–2 or 3–1 reducing sleeve, range is extended down to ⅛ in. Reaming, light, up to ¾ inch; heavy, up to ⅝ in. Ball bearing. No load speed, 350 rpm.; full load, 275 rpm. Length overall, 20 in.

Std. equip.: same as the ½ inch drill except furnished with No. 3 Morse taper socket instead of Jacobs chucks.

Net weight, 28½ pounds; shipping weight, 35½ pounds.

Cat. No. **47**, with Int. Spd., Specify Voltage..each **$150.00**
Cat. No. **556** Reversing Switch Unit,
Specify Voltage............................each **160.00**

Optional No-Load Speeds

Add $5.00 to above prices if desired.

	Standard Unit							
	½-In. Cap.		¾-In. Cap.			1-In. Cap.		
Cat. No.	**40–7**	**40–9**	**45–2**	**45–6**	**45–9**	**47–2**	**47–6**	**47–9**
RPM....	750	900	275	600	900	275	600	900
	Reversing Switch Unit							
Cat. No.	**575–7**	**575–9**	**555–2**	**555–6**	**555–9**	**556–2**	**556–6**	**556–9**
RPM....	750	900	275	600	900	275	600	900

Ingersoll-Rand Electric Impactools

Universal Reversible Motor, A.C. and D.C.
For 110 or 220 Volts, All Cycles

Complete with 15-foot, 3-conductor cable, plug, grounding adapter, reversing switch, Universal motor and essential service tools.

Size 2U

Standard voltage, 110 or 220. Specify voltage.
Size 2U........each **$97.50**

Size 5U

Standard voltage, 110 or 220. Specify voltage.
Size 5U.......each **$130.00**

Size 8U

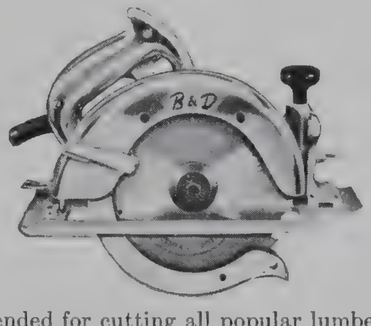
Standard voltage, 110 or 220. Specify voltage.
Size 8U.......each **$195.00**

Specifications

Size No..................	2U	5U	8U
Length Overall.........in.	9⅜	10¼	12⅛
Size Socket Driver..sq. in.	⅜	½	⅝
Impacts per Minute.......	2100	1900	1700
Applying, Removing Nuts to Bolt Size..........in.	¼	⅜	⅝
Drilling Diameter......in.	3/16	¼	⅜
Reaming Diameter.....in.	5/16	½	11/16
Tapping...............in.	No. 6 to ¼	¼ to ½	⅜ to ¾
Machine Screws........in.	¼	⅜	⅝
Wood Screws No..........	12	20	22
Hole Sawing Diameter..in.	1	1½	2
Extracting Broken Cap-Screws..........in.	¼	⅜	⅝
Driving and Removing Studs........in.	¼	⅜	⅜ to ⅝
Shank Diameter Wire Brushes.........in.	¼	⅜	1½
Woodboring............in.	9/16	29/32	1¼
Diameter Masonry Drilling..............in.	¼	⅜	⅝
Weight less Cable......lb.	5	6½	9⅞

No. 70 Black & Decker 7-Inch Heavy Duty Saws

Depth of Cut, 2 7/16 Inches
Universal Motor, A.C. and D.C.—For 115 or 220 Volts



Recommended for cutting all popular lumber sizes.

A powerful, close-coupled saw which can be used with a variety of blades for all types of cutting in wood, stone, tile, asbestos, composition and thin metals.

Adjustable for both depth of cut and angle of cut. Fast operating front and rear depth adjustments permit handle to be kept at a comfortable wrist position, even in shallow cuts.

Diameter saw blade, 7⅜ inches.

Cutting depth range: front adjustment only, 1½ to 2 7/16 inches; rear adjustment only, 1⅛ to 2 7/16 inches, both adjustments, ⅛ to 2 7/16 inches.

Maximum depth of cut at 45°, 1¾ inches.

No load speed, 4200 rpm.

Overall length, 12 13/16 inches. Instant release trigger switch, and quick action telescoping blade guard.

Equipped with saw-grip switch handle, auxiliary handle.

Standard equipment: 3-wire cable and plug, one combination rip and crosscut saw blade; adjustable shoe and wrench for changing blades.

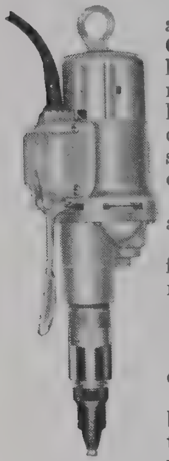
Net weight, 11½ pounds.

Cat. No. **70**, Specify Voltage..................each **$84.50**

MILLERS FALLS ELECTRIC TOOLS STOCKED IN SOUTH BEND ONLY

No. 50C Millers Falls Electric Screwdrivers

Universal Motor—115 or 230 Volts, Single Phase—25/60 Cycles, A.C.



Lightweight, balanced. It suspends over a bench in perfect alignment with the work. Controlled with ease in free-hand use. Switch levers interchange by simply removing and replacing one pin. Has power, long brush life, built-in reversing switch. Adjustomatic clutch with quick-change ¼-inch chuck is standard equipment and provides smooth operation and sensitive torque control.

Gears heat-treated alloy steel. Ball bearing armature and spindle.

Speeds for high torque, 800 and 1200 rpm; for lower torque application, 2000 and 3000 rpm.

Amperes, full load, 1.7.

No. 12x1½-inch wood screws.

Paddle or butterfly type levers, interchangeable.

Furnished with Nos. 6, 8, and 10¾-inch bit and sleeve, one set of clutch adjusting tools, 10 feet 3-wire Type SJ cord with moulded plug.

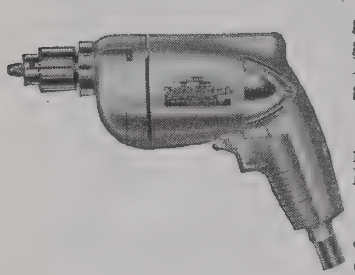
Length, 10⅝ inches. Weight, 4¼ pounds.

No. **50C**.......................................each **$80.00**

Also available 125, 150 or 250 volts, single phase.

Millers Falls Production Drills

Universal Motor, A.C. or D.C.—For 115, 125, 220/230 or 250 Volts, 25 to 60 Cycles



No. 220

Armature, intermediate gears and spindle have grease-sealed ball bearings. Heat-treated alloy steel gears throughout.

Double pole, automatic release switch with trigger latch.

Furnished with 10 feet of 3-conductor hard service cord with plug.

No. 220 is recommended for general service in steel while high speed models are ideal for drilling small diameter holes in non-ferrous metals with minimum burr. Slower speed, high torque models are recommended for stainless and hard alloy steels and full chuck capacity in non-ferrous metals.

No.	Each	Capacity, Inches Chuck	Steel	Non-Ferrous	No Load Speed RPM.	Over-all Lgth. In.	Wt. Lb.
220	$44.00	¼	¼	¼	1900	8⅞	3
225	44.00	¼	3/16	¼	3000	8⅞	3
230	44.00	¼	5/32	¼	4500	8⅞	3
235	44.00	¼	⅛	¼	5500	8⅞	3
240	50.00	5/16	5/16	5/16	1000	9⅝	3½
245	50.00	5/16	5/16	5/16	700	9⅝	3½
250	52.00	⅜	5/16	⅜	1000	10⅛	4
255	52.00	⅜	5/16	⅜	700	10⅛	4

No. **1090**, Universal Right Angle Drive Attachment for Nos. 220, 225, 230, 235, 240 and 245.......each **$26.00**

MATERIAL NOT LISTED

All of the material we can furnish is not listed in this catalog. If you don't find everything you need, please advise us and we will send manufacturers' catalogs.

¼-Inch Millers Falls Portable Electric Utility Drills

Universal Motor, A.C. and D.C.—For 115 and 230 Volts 25/60 Cycles

Capacity: ¼-inch. Speed, 2500 rpm.

Die cast aluminum housing. Alloy steel gears. Ball thrust bearings in spindle, other bearings oil impregnated bronze. Single pole switch, with lock and automatic trigger release.

Furnished with 7-foot rubber covered cord with moulded rubber reinforcement and plug. No. 1814 has 3-wires with grounding connector; No. 814 has 2-wires.

Overall length, 8 9/16 inches.

Hammertone gray enamel finish. Individually boxed.

Weight, 3 pounds.

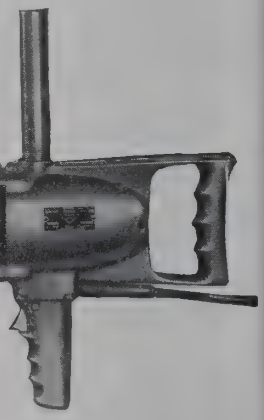
No. **814**, with Millers Falls Chuck............each **$22.85**

No. **1814**, with Geared Key Chuck............each **25.70**

No. 912 ½-Inch Millers Falls Portable Electric General Utility Drills

Universal Motor, A.C. and D.C.—For 115 and 220/230 Volts 25 to 60 Cycles

Listed by Underwriters' Laboratories

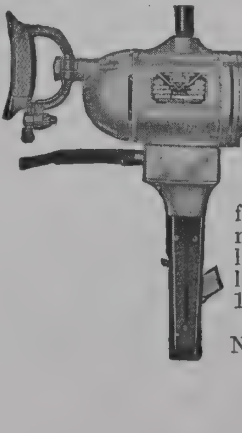


Capacity in steel, ½ inch; in hardwood, ¾ inch. Aluminum alloy housing. Alloy steel grease-lubricated gears. Bearings: ball thrust spindle; all others oil-impregnated bronze. Double pole switch with lock; automatic trigger release. Lgth., 15 in. No load speed, 450 rpm. Full load, 3 amp. With No. 33B Jacobs standard key-operated chuck; Type SJ 3-conductor cord with molded rubber reinforcements and plug cap with grounding terminal connector. Grey enamel finish.

No. **912**, Specify Voltage; Wt., 8 Lb..........each **$46.95**

No. 658B ⅝-Inch Heavy Duty Millers Falls Portable Electric Drills

Universal Motor, A.C. and D.C.—For 110, 220 or 250 Volts—Up to 60 Cycles



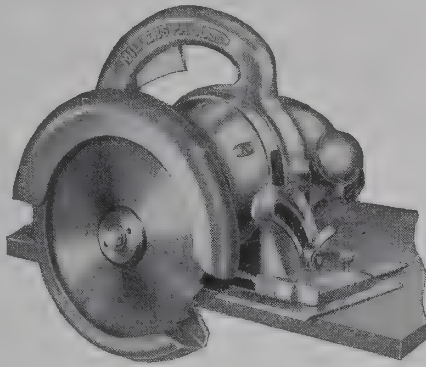
Capacity in steel, ⅝-inch; in hardwood, 1-inch. Has ⅝-inch Jacobs chuck ball bearing armature; ball thrust spindle bearing; adjustable spade handle and breast plate; safety switch with catch for continuous operation. Standard no-load speed, 475 rpm.; special no-load speed, 700 rpm. Amperes, full-load, 6.5. Overall lgth., 19¼ in. With 10-foot rubber covered cord and plug. Weight, 22⅞ pounds.

No. **658B**, Spec. Voltage.each **$100.00**

Extra charge for special speed.

Millers Falls Portable Electric Handsaws

Universal Motor—115 Volts, 60 Cycles—A.C. or D.C.



A powerful, heavy duty tool for continuous production work, ripping or crosscutting to its full rated capacity in hard or soft wood. It can also be used for cutting metals, stone, concrete, tile, and many other composition materials by employing the saws or abrasive discs best suited to the work. Precision cut, helical, alloy steel, heat treated gears. Precision ball bearings throughout.

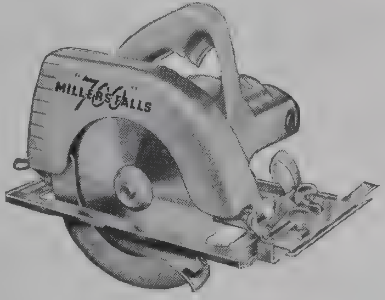
Standard equipment: One high quality standard combination saw blade, 15 feet of hard service 3-conductor cord with plug, rip guide, flange spanner, hex key for arbor screw, and metal carrying case.

No.		850	1050
Each		**$155.00**	**180.00**
Diameter Saw	inches	9	10
Maximum Cut: Right Angle	inches	3⅛	3⅝
45°	inches	2⅜	2⅝
Motor	hp.	1	1¼
No Load Speed	rpm.	4000	3800
Net Weight	pounds	20½	22¾
Shipping Weight	pounds	42½	44½

Also available for 220/230 and 250 volts.

No. 700 Millers Falls 7-Inch Portable Electric Saws

Universal Motor, A.C. or D.C. to 60 Cycles
For 110-115 Volts—½ Horsepower



For general construction use.

Motor provides ample power for operation at full capacity. Power delivered to saw blade through chain of precision cut, helical gears made of fine, heat treated alloy steel, scientifically lubricated. Precision ball bearings throughout.

Motor housing, handle and saw guards are aluminum alloy castings. Base is of extra rigid steel stamping. Bevel and depth adjustment fixtures anchored to motor housing and base are rugged steel stampings locked by large wint nuts.

Has standard combination ⅝ inch arbor hole.

Capacity: Vertical cut adjustable from 2⅜ to ¾ inch. Bevel cuts at miter adjustable from 1¾ to $\frac{9}{16}$ inch.

Standard Equipment: Built-in angle and depth adjustments. Ripping guide and 10 feet of three conductor cord with plug. Wrench for changing saw.

Revolutions per minute, 5000 N.L.

Base 6½x11½ inches.

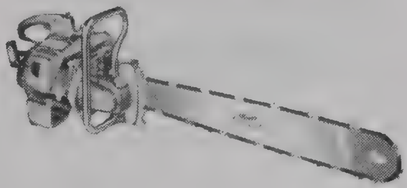
Also available in 220–230 volts.

Net weight, 11 pounds. Shipping weight, 22½ pounds.

No. **700** each	**$76.10**
No. **7000** Gray Enameled Steel Carrying Case	**7.85**

No. 1MG Mall Gasoline Chain Saws

14 to 42-Inch Cutting Capacity



Will cut hard, soft, wet and frozen wood. Full 360-degree swivel indexing permits adjustment to any angle.

Housing of die cast aluminum-magnesium alloy. Bar of one piece hardened alloy spring steel. Chain, $\frac{9}{16}$-inch chrome plated improved planer.

Has automatic clutch to stop chain when engine idles, safety ignition switch, fully enclosed automatic rewind starter, fingertip trigger throttle, automatic chain oiler with oil flow adjustment.

Engine: 3½ hp. single cylinder, two-cycle air cooled gasoline. Lubricated by mixing oil with gasoline. All position Tillotson float type carburetor.

Standard Equipment: engine, transmission, bar, chain, chain repair kit, file, wrench, screwdriver, sparkplug, sparkplug wrench and setting gage, nylon starter cord and instruction manual.

Engine height, 12¼ inches; width, 13 inches; length, 13 inches minus bar.

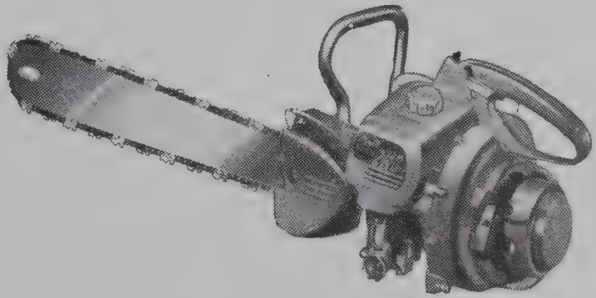
Saw				Extra Chain	
No.	Each	Bar Size In.	Lb. Wt.	No.	Each
1MG18	**$255.00**	18	29	**48212**	**$15.85**
1MG24	**257.50**	24	31	**48213**	**20.15**
1MG30	**260.00**	30	33	**48214**	**24.50**
1MG36	**262.00**	36	35	**48215**	**28.80**
1MG42	**265.00**	42	37	**48216**	**31.70**
*1MGP14	**290.00**	14	30	**48213**	**20.15**
*1MGP18	**300.00**	18	33	**48214**	**24.50**

Diaphragm carburetor available at $10.00 extra.

*Pinchless type.

Model 2MG Mall Gasoline Engine Chain Saws

18 to 54-Inch Cutting Bars



Single-cylinder, 5½-Hp., 2-cy., air-cooled, gasoline engine. Lightweight aluminum alloy piston with chrome-plated cylinder wall. Forged steel crankshaft runs on anti-friction ball and needle bearings. Float type carburetor. Dry type purifier; keeps foreign material out of carburetor and crankcase. Trigger type throttle is built into handle grip.

One hand, automatic, kickproof, rewind type starter. High tension, flywheel magneto ignition; dust and moistureproof.

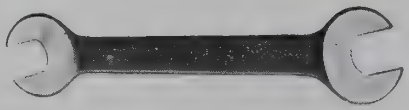
One-piece transmission housing. Hardened spiral bevel gears turn in liquid grease. Shafts run on long-wearing ball and needle bearings. Automatic centrifugal clutch; requires no controls. Safety stop button.

Housings are completely die-cast aluminum and magnesium alloy. A 360-degree adjustable chain bar indexes to any angle. Chrome-plated side planer chain, $\frac{9}{16}$-inch pitch. Fully automatic chain, sprocket and bar oiler. Chain tension: one screw positive locking device.

No.	2MG18	2MG24	2MG30	2MG36	2MG42	2MG54
Each	**$295.00**	**297.50**	**300.00**	**302.50**	**305.00**	**310.00**
Bar Cap in.	18	24	30	36	42	54
Ship.Wt.lb.	42	44	46	48	50	52

Bonney Carbon Steel Engineer's Wrenches

15° Angle—Double Head



Finished in black enamel and heads bright.

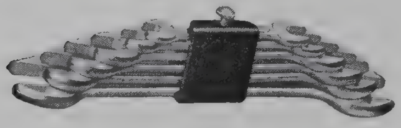
		Dimensions, Inches					
			Regular Series		Hvy. Series Bolt and Nut	Light Series Nut Size	Cap-Screw
No.	Each	Open.	Bolt Size	Nut Size			
721	$.65	5/16, 3/8	1/4	*5, *6, *10	....	....	....
723	.80	3/8, 7/16	1/4	*10, *12—1/4	....	1/4	1/4
725	.99	7/16, 1/2	5/16	*12—1/4	1/4	1/4, 5/16	1/4, 5/16
725A	.99	7/16, 9/16	3/8	*12—1/4, 5/16	....	1/4, 3/8	1/4, 3/8
725B	.99	1/2, 9/16	5/16, 3/8	5/16	1/4	5/16, 3/8	5/16, 3/8
25	.99	1/2, 19/32	5/16	....	1/4, 5/16	5/16	5/16
727	1.22	9/16, 5/8	3/8, 7/16	5/16, 3/8	....	3/8, 7/16	3/8, 7/16
27	1.22	19/32, 11/16	....	....	5/16, 3/8	....	....
27B	1.22	5/8, 11/16	7/16	3/8	3/8	7/16	7/16
28	1.36	19/32, 25/32	....	....	5/16, 7/16	....	....
729	1.44	5/8, 3/4	7/16, 1/2	3/8, 7/16	....	7/16, 1/2	7/16, 1/2
29B	1.44	11/16, 3/4	1/2	7/16	3/8	1/2	1/2
29	1.36	11/16 25/32	....	....	3/8, 7/16	....	....
29C	1.44	11/16, 13/16	....	1/2	3/8	....	9/16
731	1.78	3/4, 15/16	1/2	7/16, 1/2	....	1/2	1/2, 9/16
731A	1.78	3/4, 7/8	1/2, 9/16	7/16, 9/16	1/2	1/2, 9/16	1/2, 5/8
31B	1.67	25/32, 13/16	....	1/2	7/16	....	9/16
31	1.67	25/32, 7/8	9/16	9/16	7/16, 1/2	9/16	5/8
731B	1.78	13/16, 7/8	9/16	1/2, 9/16	1/2	9/16	9/16, 5/8
32B	2.02	13/16, 15/16	5/8	1/2	9/16	5/8	9/16
33A	2.14	7/8, 15/16	9/16, 5/8	9/16	1/2, 9/16	9/16, 5/8	5/8
733	2.14	7/8, 1	9/16	9/16, 5/8	1/2	9/16	5/8, 3/4
33C	2.14	15/16, 1	5/8	5/8	9/16	5/8	3/4
34	2.66	7/8, 1 1/16	9/16	9/16	1/2, 5/8	9/16, 3/4	5/8
34A	2.52	15/16, 1 1/16	5/8	....	9/16, 5/8	5/8, 3/4	....
735	2.66	1, 1 1/8	3/4	5/8, 3/4	....	....	3/4, 7/8
36B	2.66	1 1/16, 1 1/8	3/4	3/4	5/8	3/4	7/8
37	3.75	1 1/16, 1 1/4	....	....	5/8, 3/4	3/4, 7/8	....
737	3.75	1 1/8, 1 1/4	3/4	3/4	3/4	7/8	7/8
37A	3.75	1 1/8, 1 5/16	3/4, 7/8	3/4, 7/8	....	....	7/8, 1
39B	5.46	1 1/4, 1 5/16	7/8	7/8	3/4	7/8	1
39	5.46	1 1/4, 1 7/16	....	....	3/4, 7/8	7/8, 1	....
39A	5.16	1 5/16, 1 1/2	7/8, 1	7/8, 1	....	....	1, 1 1/8
39C	5.46	1 3/8, 1 7/16	....	....	7/8	1	....
41	7.01	1 7/16, 1 5/8	....	....	7/8, 1	1, 1 1/8	....
41B	7.43	1 1/2, 1 5/8	1	1	1	1 1/8	1 1/8
42A	9.79	1 1/2, 1 11/16	1, 1 1/8	1, 1 1/8	....	....	1 1/8, 1 1/4
43	9.79	1 5/8, 1 13/16	....	....	1, 1 1/8	1 1/8, 1 1/4	....
44A	14.10	1 11/16, 1 7/8	1 1/8, 1 1/4	1 1/8, 1 1/4	....	....	1 1/4
45	13.30	1 13/16, 2	....	....	1 1/8, 1 1/4	1 1/4, 1 3/8	....
45A	13.30	1 7/8, 2 1/16	1 1/4, 1 3/8	1 1/4, 1 3/8	....	....	....
47	20.56	2, 2 3/16	....	....	1 1/4, 1 3/8	1 3/8, 1 1/2	....
47B	19.38	2 1/16, 2 1/4	1 3/8, 1 1/2	1 3/8, 1 1/2	....	....	....
49	27.38	2 3/16, 2 3/8	....	....	1 3/8, 1 1/2	1 1/2	....
49A	27.38	2 1/4, 2 7/16	1 1/2, 1 5/8	1 1/2, 1 5/8	....	....	....

*Machine screw size No.

Vlchek Panel Bar Wrench Sets

In Hinged Containers

Drop Forged—Tempered



A streamlined wrench made of carbon steel.

Hinged container is attractively enameled.

Offered in two finishes, natural black, and Velco white rust-proof finish. Sizes marked on each wrench.

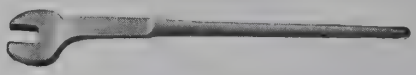
Six-piece set contains six wrenches with twelve openings of 3/8, 7/16, 1/2, 9/16, 19/32, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16 and 1-inch sizes.

Weight each, 1.56 pounds. Packed in bulk.

No. **X2571**, Velco White Rust-Proof Finish......each **$1.20**
No. **X2160**, Natural Black Finish...............each **1.06**

Bonney Carbon Steel Structural Wrenches

Straight Opening—Offset Head



Shot-blasted finish. Head not bright.

		Dimensions, Inches						
				Regular Series		Hvy. Ser. Bolt and Nut	Light Ser. Nut	Cap-Screw
No.	Each	Open.	Hdle. Off-set at Hd.	Bolt	Nut			
901A	$1.55	7/16	9/16	...	1/4	...	1/4	1/4
901	1.55	1/2	9/16	5/16	...	1/4	5/16	5/16
901B	1.55	9/16	9/16	3/8	5/16	...	3/8	3/8
902	1.46	19/32	9/16	...	...	5/16	...	...
903A	2.05	5/8	3/4	7/16	3/8	...	7/16	7/16
903	2.05	11/16	3/4	...	...	3/8	...	...
904A	2.05	3/4	3/4	1/2	7/16	...	1/2	1/2
904	1.94	25/32	3/4	...	...	7/16	...	...
905A	2.73	13/16	7/8	...	1/2	...	...	9/16
905	2.73	7/8	7/8	9/16	9/16	1/2	9/16	5/8
906	2.73	15/16	7/8	...	...	*9/16	...	...
906B	2.73	1	7/8	...	5/8	...	...	3/4
907	3.63	1 1/16	1	...	...	5/8	3/4	...
907A	3.63	1 1/8	1	3/4	3/4	...	...	7/8
908	4.61	1 1/4	1 1/8	...	...	3/4	7/8	...
908A	4.61	1 5/16	1 1/8	7/8	7/8	...	...	1
909	5.88	1 7/16	1 1/4	...	...	7/8	1	...
909A	5.88	1 1/2	1 1/4	1	1	...	...	1 1/8
910	8.02	1 5/8	1 7/16	...	...	1	1 1/8	...
910A	8.02	1 11/16	1 7/16	1 1/8	1 1/8	...	...	1 1/4
911	12.02	1 13/16	1 5/8	...	...	1 1/8	1 1/4	...
911A	12.02	1 7/8	1 5/8	1 1/4	1 1/4	...	...	...
912	12.02	2	1 5/8	...	...	1 1/4	1 3/8	...

*U.S.S.

Bonney Carbon Steel Construction Wrenches

15° Angle

Shot-blasted finish; head not bright.

		Dimensions, Inches						
			Regular Series		Hvy. Ser. Bolt and Nut	Lgt. Ser. Nut	Cap-Screw	Approx. Wt. Lb.
No.	Each	Open	Bolt	Nut				
201A	$1.44	7/16	..	1/4	..	1/4	1/4	1/3
201	1.44	1/2	5/16	..	1/4	5/16	5/16	1/3
201B	1.44	9/16	3/8	5/16	..	3/8	3/8	1/3
202	1.36	19/32	..	..	5/16	..	..	1/3
203A	1.86	5/8	7/16	3/8	..	7/16	7/16	1/2
203	1.86	11/16	..	..	3/8	..	..	1/2
204A	1.86	3/4	1/2	7/16	..	1/2	1/2	1/2
204	1.76	25/32	..	..	7/16	..	..	1/2
205A	2.35	13/16	..	1/2	..	..	9/16	1
205	2.35	7/8	9/16	9/16	1/2	9/16	5/8	1
206	2.35	15/16	..	..	*9/16	..	..	1
206B	2.35	1	..	5/8	..	..	3/4	1
207	3.05	1 1/16	..	..	5/8	3/4	..	1 3/4
207A	3.05	1 1/8	3/4	3/4	..	..	7/8	1 3/4
208	4.00	1 1/4	..	..	3/4	7/8	..	2 7/8
208A	4.00	1 5/16	7/8	7/8	..	..	1	2 7/8
209	5.28	1 7/16	..	..	7/8	1	..	3 1/2
209A	5.28	1 1/2	1	1	..	..	1 1/8	3 1/2
210	7.04	1 5/8	..	..	1	1 1/8	..	5 1/8
210A	7.04	1 11/16	1 1/8	1 1/8	..	..	1 1/4	5 1/8
211	10.39	1 13/16	..	..	1 1/8	1 1/4	..	7 1/2
211A	10.39	1 7/8	1 1/4	1 1/4	..	..	..	7 1/2
212	10.39	2	..	..	1 1/4	1 3/8	..	7 1/2

*U.S.S

Bonney Box Wrenches

Bonaloy Steel—15° Angle—Double Hexagon Openings

For locations with low overhead clearance. Drop-forged and heat-treated. Chrome plate with polished heads.

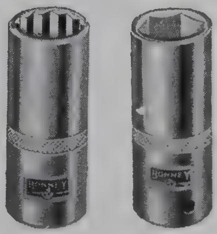
Short Type

No.	Each	Dimensions, Inches Open	Regular Series Bolt	Regular Series Nut	Hvy. Bolt & Nut	Light Ser. Nut	Cap-Screw
2885	$1.36	5/16, 3/8	1/4	......	......	......	......
2886	1.36	3/8, 7/16	1/4	1/4	......	1/4	1/4
2887	1.36	7/16, 1/2	5/16	1/4	1/4	1/4, 5/16	1/4, 5/16
2888	1.36	1/2, 9/16	5/16, 3/8	5/16	1/4	5/16, 3/8	5/16, 3/8
2889	1.56	9/16, 5/8	3/8, 7/16	5/16, 3/8	......	3/8, 7/16	3/8, 7/16

Long Type

No.	Each	Open	Regular Series Bolt	Regular Series Nut	Hvy. Bolt & Nut	Light Ser. Nut	Cap-Screw
2890	$1.49	3/8, 7/16	1/4	1/4	......	1/4	1/4
2890C	1.49	7/16, 1/2	5/16	1/4	1/4	1/4, 5/16	1/4, 5/16
2891	1.49	1/2, 9/16	5/16, 3/8	5/16	1/4	5/16, 3/8	5/16, 3/8
2891A	1.49	1/2, 19/32	5/16	......	1/4, 5/16	5/16	5/16
2891C	1.61	9/16, 5/8	3/8, 7/16	5/16, 3/8	......	3/8, 7/16	3/8, 7/16
2892	1.94	5/8, 11/16	7/16	3/8	3/8	7/16	7/16
2892C	1.94	19/32, 11/16	......	......	5/16, 3/8	......	......
2892B	1.86	5/8, 3/4	7/16, 1/2	3/8, 7/16	......	7/16, 1/2	7/16, 1/2
2893A	2.12	11/16, 25/32	......	......	3/8, 7/16	......	......
2893	2.12	3/4, 13/16	1/2	7/16, 1/2	......	1/2	1/2, 9/16
2893B	2.31	3/4, 7/8	1/2, 9/16	7/16, 9/16	1/2	1/2, 9/16	1/2, 5/8
2894C	2.31	13/16, 7/8	9/16	1/2, 9/16	1/2	9/16	9/16, 5/8
2894	3.19	7/8, 15/16	9/16, 5/8	9/16	1/2, 9/16	9/16, 5/8	5/8
2894A	4.08	7/8, 1	9/16	9/16, 5/8	1/2	9/16	5/8, 3/4
2894B	4.08	15/16, 1	5/8	5/8	9/16	5/8	3/4
2895B	4.62	15/16, 1 1/16	5/8	......	9/16, 5/8	5/8, 3/4	......
2895C	4.62	1, 1 1/8	3/4	5/8, 3/4	......	......	3/4, 7/8
2895E	4.70	1 1/16, 1 1/4	......	......	5/8, 3/4	3/4, 7/8	......
2895J	5.17	1 1/8, 1 5/16	3/4, 7/8	3/4, 7/8	......	......	7/8, 1
2896	5.09	1 1/8, 1 3/8	3/4	3/4	......	......	7/8
2897	5.49	1 1/4, 1 7/16	......	......	3/4, 7/8	7/8, 1	......
2898	5.95	1 5/16, 1 1/2	7/8, 1	7/8, 1	......	......	1, 1 1/8
2898A	6.50	1 7/16, 1 5/8	......	......	7/8, 1	1, 1 1/8	......

Bonaloy Double Hexagon and Hexagon Extra Deep Sockets



With 3/8-inch square drive. Chromium plated.

Double Hex. No.	Hex. No.	Each	Opening In.	Lgth. In.	Regular Series Bolt Size In.	Regular Series Nut Size In.	Heavy Series Bolt & Nut Size In.	Light Series Nut Size In.	Cap-Screw In.
LT12	T120	$.90	3/8	1 3/4	1/4	#10	..	..	..
LT14	T140	.90	7/16	2	..	*1/4	..	1/4	1/4
LT16	T160	.90	1/2	2	5/16	..	1/4	5/16	5/16
LT18	T180	.90	9/16	2	3/8	5/16	..	3/8	3/8
LT20	T200	1.06	5/8	2 1/4	7/16	3/8	..	7/16	7/16
LT22	T220	1.10	11/16	2 1/2	..	..	3/8	..	..
LT24	T240	1.21	3/4	2 1/2	1/2	7/16	..	1/2	1/2
LT26	T260	1.31	13/16	2 1/2	..	1/2	..	..	9/16
LT28	T280	1.49	7/8	2 1/2	9/16	9/16	1/2	9/16	5/8

*Also No. 12 and 14.

Bonney Double Hexagon Sockets

Bonaloy Steel

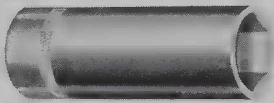
Small Series—3/8-Inch Square Drive

Chromium-plated finish.

No.	Each	Opening In.	Regular Series Bolt Size In.	Regular Series Nut Size In.	Heavy Series Bolt & Nut Size In.	Light Series Nut Size In.	Cap-Screw In.
T10	$.74	5/16	..	..	..	..	..
T12	.74	3/8	1/4	..	..	..	..
T14	.74	7/16	..	1/4	..	1/4	1/4
T16	.74	1/2	5/16	..	1/4	5/16	5/16
T18	.74	9/16	3/8	5/16	..	3/8	3/8
T19	.74	19/32	..	..	5/16	..	..
T20	.74	5/8	7/16	3/8	..	7/16	7/16
T22	.81	11/16	..	..	3/8	..	..
T24	.81	3/4	1/2	7/16	..	1/2	1/2
T25	.87	25/32	..	..	7/16	..	..
T26	.87	13/16	..	1/2	..	..	9/16
T128	.95	7/8	9/16	9/16	1/2	9/16	5/8

No. T120 Bonney Extra Deep Sockets

Single Hexagon—3/8-Inch Drive



Opening, 3/8 inch. Length, 1 3/4 inches. For 1/4-inch bolt size.

No. T120..each **$1.04**

Bonney CV Chrome-Vanadium Handles and Attachments

Small Series—3/8-Inch Square Drive

No. T2, offset handle. No. T3, universal joint. No. T4, extension. No. T5, extension. No. T6, extension.

No. T7, 1/2-inch crowfoot attachment. No. T8, 9/16-inch crowfoot attachment.

No. T9, speeder.

No. T27, drag link socket.

No. T28 ratchet handle with lug.

No. T29A, extra lug for No. T28 ratchet.

No. T30, hinge handle.

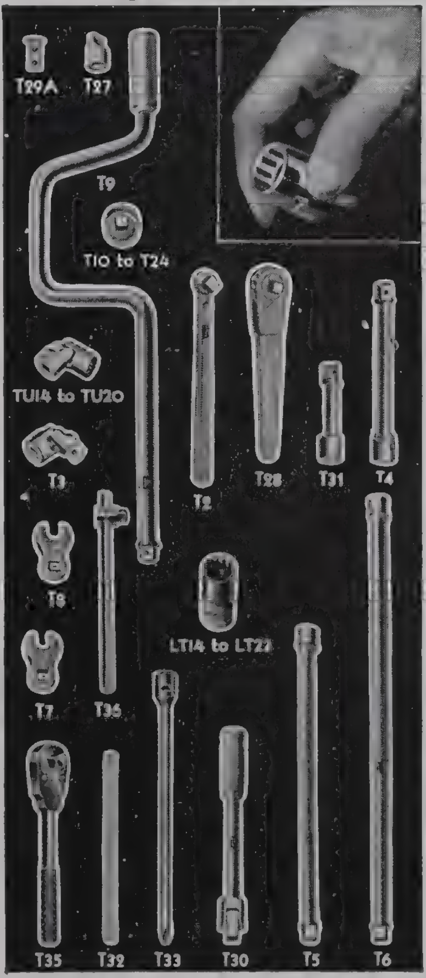
No. T31, extension.

No. T32, cross handle for Nos. T4, T5, T6, T30, T33.

No. T35, reversible ratchet.

No. T36, sliding T handle.

No. T42, screwdriver handle.

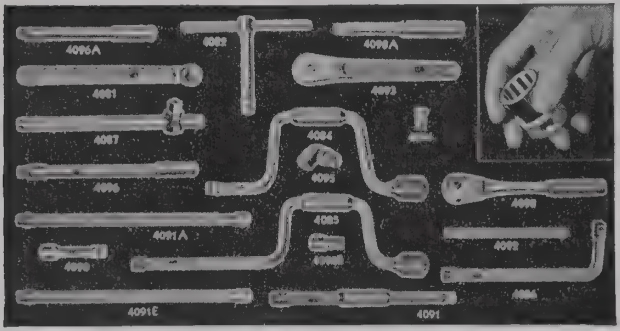


No.	Each	Length Inches
T 2	$2.48	7
T 3	2.59	....
T 4	1.65	6
T 5	1.97	12
T 6	2.68	17
T 7	1.45	....
T 8	1.49	....
T 9	2.48	17 1/4
T27	1.03	....
T28	5.53	6 1/2
T29A	.81	....
T30	3.41	7 5/8
T31	1.35	3
T32	.44	6
T35	5.64	6 1/2
T36	1.98	8
T42	1.99	5 1/8

Bonney Standard Socket Wrenches

Bonaloy Steel

1/2-Inch Square Drive



Handles and Attachments

No.	Each	Description
A740	$3.89	Brace, 14 1/2 Inches Long
A744	4.28	Speeder, 19 3/4 Inches Long
A730	2.91	Sliding T-Handle, 11 Inches Long
A732	2.98	Sliding T-Handle, 15 Inches Long
A605	1.76	Extension, 5 Inches Long
A602	1.60	Extension, 2 Inches Long
A610	2.19	Extension, 10 Inches Long
A620	3.67	Extension, 20 Inches Long
A775	.51	Cross Handle 8 Inches Long
A760	3.19	Universal Joint
A722	5.39	Hinge Handle 15 5/8 Inches Long
A720	5.06	Hinge Handle 12 5/8 Inches Long
A704	7.60	Reversible Ratchet 10 Inches Long

Double-Square Sockets

No.	Each	Opening Inches	No.	Each	Opening Inches
AS12	$.99	3/8	AS22	$1.38	11/16
AS14	.99	7/16	AS24	1.38	3/4
AS16	.99	1/2	AS28	1.65	7/8
AS18	.99	9/16	AS32	2.00	1
AS20	1.05	5/8	.....	....	...

Hexagon Sockets

No.	Each	Opening Inches	No.	Each	Opening Inches
AH12	$.99	3/8	AH24	$.99	3/4
AH14	.99	7/16	AH25	1.05	25/32
AH16	.99	1/2	AH26	1.09	13/16
AH18	.99	9/16	AH28	1.09	7/8
AH19	1.05	19/32	AH30	1.21	15/16
AH20	1.05	5/8	AH31	1.21	31/32
AH22	1.35	11/16	AH32	1.21	1

Straight Wall Double Hexagon Sockets

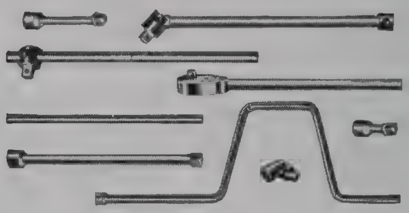
No.	Each	Opening Inches	No.	Each	Opening Inches
A12	$.83	3/8	A26	$1.09	13/16
A14	.83	7/16	A28	1.09	7/8
A16	.83	1/2	A30	1.21	15/16
A18	.83	9/16	A31	1.21	31/32
A19	.83	19/32	A32	1.21	1
A20	.83	5/8	A34	1.38	1 1/16
A21	.94	21/32	A36	1.60	1 1/8
A22	.94	11/16	A38	1.65	1 3/16
A24	.99	3/4	A40	1.76	1 1/4
A25	1.05	25/32	....	....	...

Bonney Socket Wrenches

Bonaloy Steel

Heavy Duty Series

3/4-Inch Square Drive



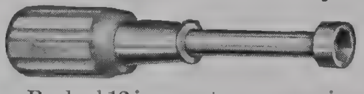
Heavy-Duty Series Handles and Attachments

No.	Description	Each
R742	Brace 28 Inches Long	$7.54
R704	Reversible Ratchet Handle, 20 Inches Long	16.45
R730	Sliding T Handle, 20 Inches Long	5.55
R720	Hinge Handle, 22 Inches Long	10.00
R775	Cross Handle, 16 3/8 In. Long, 11/16-in. Diam.	1.10
R609	Extension, 8 1/2 Inches Long	3.78
R604	Extension, 4 Inches Long	3.32
R617	Extension, 16 1/2 Inches Long	5.25
R760	Universal Joint	8.97

Heavy Duty Series Sockets

Opening Inches	Hexagon		Double Hexagon		Double Square	
	No.	Each	No.	Each	No.	Each
7/8	....	....	R28	$1.78	RS28	$2.66
15/16	....	....	R30	1.78	.....	....
1	....	....	R32	1.87	RS32	2.99
1 1/16	....	....	R34	1.93	RS34	3.19
1 1/8	....	....	R36	1.93	.....	....
1 3/16	....	....	R38	2.13	.....	....
1 1/4	....	....	R40	2.32	RS40	4.26
1 5/16	....	....	R42	2.60	.....	....
1 3/8	....	....	R44	2.76	.....	....
1 7/16	....	....	R46	3.10	RS46	5.18
1 1/2	....	....	R48	3.36	.....	....
1 9/16	....	....	R50	3.36	.....	....
1 5/8	....	....	R52	3.63	.....	....
1 11/16	....	....	R54	3.70	.....	....
1 3/4	....	....	R56	3.75	.....	....
1 13/16	....	....	R58	3.80	.....	....
1 7/8	....	....	R60	4.00	.....	....
2	....	....	R64	4.40	.....	....
2 1/16	R66	$5.20	....	....	.....	....
2 1/8	R68	5.51	....	....	.....	....
2 3/16	R70	6.75	....	....	.....	....
2 1/4	R72	7.93	....	....	.....	....

Stevens Walden Spintite Wrenches



For use in the home, radio shop, electrical shop, industrial piant, on the automobile, etc.

Packed 12 in a carton, approximate ship. weight, 3 pounds.

No.	Each	Hex. Size In.	Length Overall Inches	Machine Screw Nut	No.	Each	Hex. Size In.	Length Overall Inches	Machine Screw Nut
3406	$.59	3/16	6	2+3	3412	$.59	3/8	6	10
3407	.59	7/32	6	....	3414	.88	7/16	7 1/8	12+1/4
3408	.59	1/4	6	4	3416	.88	1/2	7 1/8	....
3409	.59	9/32	6	....	3418	1.50	9/16	7 1/8	5/16
3410	.59	5/16	6	5+6	3420	1.55	5/8	7 1/8	3/8
3411	.59	11/32	6	8	....	....	..	...	....

No. T-73 Stevens Walden Spintite Bench Sets

Includes one each of Nos. 3406, 3408, 3410, 3411, 3412, 3414, and 3416. Shipping weight, 3 3/8 pounds.

No. T-73, Complete Set with Stand..............each $5.40
Stand Only..................................each 1.00

Crescent Adjustable Wrenches

Single End

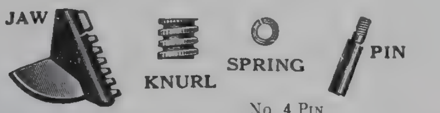
CRESCENT TOOL CO. JAMESTOWN N.Y.

For use on automobiles, gas or gasoline engines, motor boats, machine shops, etc.

Made of a special analysis carbon tool steel, hardened and toughened by special neat-treating process.

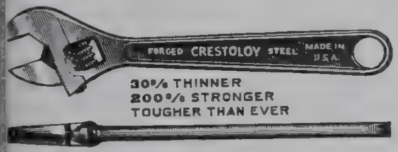
No.	Each	Length Inches	Capacity Inches	Weight Pounds
A14	$1.65	4	½	⅛
A16	1.65	6	¾	5/16
A18	2.00	8	15/16	⅝
A110	2.45	10	1⅛	1⅛
A112	3.70	12	1 5/16	2
A115	5.80	15	1 11/16	4 5/16
A118	8.45	18	2 1/16	7

Parts

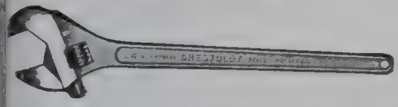


gth. In.	No. 2 Jaw No.	No. 2 Jaw Each	No. 3 Knurl No.	No. 3 Knurl Each	No. 4 Pin With Spring No.	No. 4 Pin With Spring Each	No. 5 Spring No.	No. 5 Spring Each
4	A14J	$.40	A14K	$.15	A14P	$.06	A14S	$.06
6	A16J	.40	A16K	.15	A16P	.06	A16S	.06
8	A18J	.45	A18K	.20	A18P	.06	A18S	.06
0	A110J	.60	A110K	.25	A110P	.06	A110S	.06
2	A112J	.95	A112K	.35	A112P	.16	A112S	.06
5	A115J	1.30	A115K	.50	A115P	.16	A115S	.06
8	A118J	1.75	A118K	.55	A118P	.16	A118S	.06

Crestoloy Single End Wrenches



Single End
Sizes 4 to 12 Inches



Single End, Tapered Handle
Sizes 15 to 24 Inches

Made of special alloy steel; chromium plated. Special method of finishing handle prevents it from becoming slippery when used with wet or oily hands. Instantly adjustable to proper size; holds its adjustment until changed.

Packed 1 in a box.

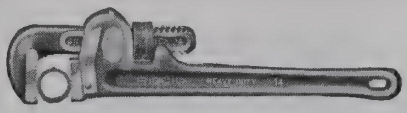
No.	Each	Size Inches	Cap. Inches	Thickness Head, Inches Thickest Point	Thickness Head, Inches Tip of Jaw	Ship. Wt. Oz.
AC14	$2.10	4	½	5/16	⅛	2
AC16	2.10	6	¾	13/32	7/32	5
AC18	2.45	8	15/16	15/32	¼	8
AC110	3.15	10	1⅛	9/16	⅜	13
AC112	4.60	12	1 5/16	¾	15/32	24
AC115	6.85	15	1 11/16	15/16	19/32	54
AC118	11.30	18	2 1/16	1⅛	11/16	84
AC124	18.55	24	2 7/16	1 13/32	⅞	144

*Has tapered handle.

Parts

ize	Jaw No.	Jaw Each	Knurl No.	Knurl Each	Pin With Spring No.	Pin With Spring Each	Spring No.	Spring Each
4	AC14J	$.45	AC14K	$.20	AC14P	$.06	AC14S	$.06
6	AC16J	.45	AC16K	.20	AC16P	.06	AC16S	.06
8	AC18J	.60	AC18K	.20	AC18P	.06	AC18S	.06
0	AC110J	.75	AC110K	.25	AC110P	.06	AC110S	.06
2	AC112J	1.10	AC112K	.40	AC112P	.16	AC112S	.06
5	AC115J	1.70	AC115K	.50	AC115P	.16	AC115S	.06
8	AC118J	2.00	AC118K	.60	AC118P	.20	AC118S	.06
4	AC124J	3.10	AC124K	.90	AC124P	.20	AC124S	.06

Ridgid Straight Pattern Pipe Wrenches



Powerful all-alloy housing and handle; housing guaranteed not to break or warp. Strong alloy steel jaws will not slip or lock on pipe. Replaceable heel jaw, full-floating hook jaw with handy pipe scale. Adjusting nut spins easily in open housing in all sizes.

Packed 6 in a box, 6 to 24-inch inclusive. Larger sizes individually wrapped.

Size In.	Each	Cap. In.	Wt. Lb.	Size In.	Each	Cap. In.	Wt. Lb.
6	$1.90	¾	½	18	$5.50	2½	5¾
8	2.20	1	¾	24	9.50	3	9¾
10	2.85	1½	1¾	36	20.00	5	19½
12	3.35	2	2¾	48	30.00	6	33
14	3.85	2	3½	60	45.00	8	51½

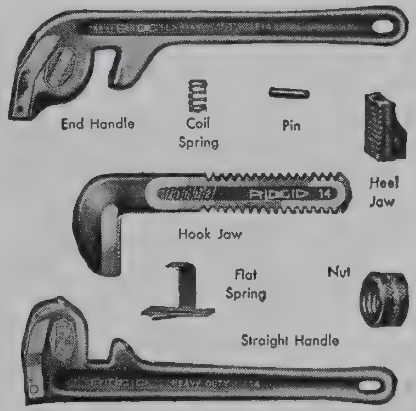
Ridgid End Pattern Pipe Wrenches

A heavy duty offset pipe wrench designed for work where pipe is close to wall or in tight places. Powerful all-alloy handle and housing; housing will not break or warp. Tough alloy jaws will not slip or lock on pipe. Replaceable heel jaw, full-floating hook jaw with handy pipe scale. Adjusting nut spins easily in all sizes.

Packed 6 in a box, 6 to 24-inch inclusive. Larger sizes individually wrapped.

No.	E6	E8	E10	E12	E14	E18	E24	E36
Each	$1.90	2.20	2.85	3.35	3.85	5.50	9.50	20.00
Size.........in.	6	8	10	12	14	18	24	36
Cap...........in.	¾	1	1½	2	2	2½	3	5
Wt.........lb.	½	¾	1¾	2¾	3½	5¾	9¾	19½

Parts for Ridgid Pipe Wrenches



Size In.	Handle Assembly Straight Each	Handle Assembly End Each	Hook Jaw Each	Heel Jaw & Pin Each	Pin Each	Coil Spring Each	Flat Spring Each	Nut Each
6	$1.75	$1.75	$.65	$.40	$.03	$.03	$.20	$.15
8	1.95	1.95	.70	.45	.03	.03	.20	.15
10	2.50	2.50	1.10	.55	.04	.03	.20	.20
12	2.85	2.85	1.25	.65	.04	.03	.25	.25
14	3.45	3.45	1.50	.65	.04	.03	.30	.30
18	4.95	4.95	2.15	.75	.04	.04	.40	.35
24	7.95	7.95	3.50	.85	.04	.04	.50	.55
36	15.00	15.00	5.70	1.15	.05	.04	.60	1.10
48	25.00	.....	9.00	2.05	.05	.04	.80	2.00
60	35.00	.....	17.00	4.55	.05	.04	1.50	4.00

Lite-Mite Forged Aluminum Pipe Wrenches

LITE-MITE
INT FORGE

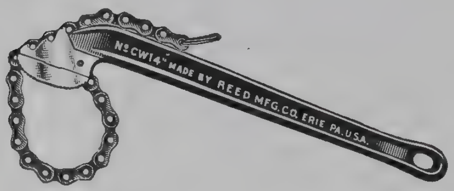
Housing and hook made of forged aluminum alloy to provide lightness and ease of handling. Heeljaw and hookjaw both replaceable, made of high alloy steel and heat treated to give extreme hardness and toughness to both jaws.

Adjusting nut made of steel alloy possesses extreme hardness, strains equally distributed on threads. Nut is easy to get hold of and spins easily.

Hook is supported by spring to cause floating action, guarantees instant grip and let go.

Size In.	Complete Each	Handle Each	Hook Each	Jaws Each	Screws Each	Spring Each	Nut Each	Capacity In.	Wt. Lb.
10	$4.95	$2.95	$1.85	$.65	$.05	$.52	$.45	1½	15/16
14	6.95	4.95	2.95	.85	.05	.52	.50	2	1¾
18	9.95	6.95	3.60	1.10	.05	.52	.65	2½	2⅝
24	14.95	10.50	5.50	1.35	.05	.65	.90	3	3¾
36	27.95	21.00	8.60	1.70	.06	.80	1.60	4½	8

Reed Du-All Chain Wrench



An all-purpose wrench. Fits into close quarters. Turns or holds any round, square or irregular shape firmly. Has a fast ratchet action that works either way from either side.

Replaceable jaws made of hardened tool steel. Handle is made of high tensile malleable with heavy sections at stress points. Precision chain is equal to any strain which can be imposed by handle length.

No.	Complete Each	Extra Chain Each	Extra Jaws Per Pair	Capacity Pipe Inches	Hdl. Lgth. In.
CW10	$5.10	$2.95	$1.35	⅛–1½	10
CW14	6.40	4.25	1.60	⅛–2	14
CW18	9.10	5.35	2.15	¼–2½	18
CW24	11.75	6.95	2.40	¼–3	24
CW36	22.40	10.65	4.80	½–4½	36

Roddick Internal Pipe Wrenches

PAT. PEND
ANAHEIM, CALIF.

Can be used while working on sprinkling systems, wall installations and other tight places where ordinary pipe wrench cannot do the job.

Tightens or removes close nipples or other pipe and fittings easily and safely, without damage to threads or pipe walls.

Made of heat-treated alloy steel.

Size.....in.	⅛	¼	⅜	½	¾	1	1¼	1½	2
Each......	$1.98	1.98	1.98	1.98	2.15	2.75	4.00	4.50	5.00

Set of 4 in Kit ⅜, ½, ¾, and 1 Inch..........per set **$8.86**

Ridgid Tri-Stand Pipe Vises

Wide, roomy; for dope pot, oil can and tools; balanced; special rim and slots for hanging tools; adjustable ceiling brace; pipe rest, 3 benders that will not collapse pipe; legs fold in; chain for carrying screwdown feet; special malleable metal frame; tool steel jaws, hardened for grip and long wear.

No. 40-A, yoke type: capacity, ⅛ to 2½ in.; base; lower jaw; jaw bolts; tool tray with fittings; jack screw assembly; top or bottom screw assembly; yoke and hook assembly; 2 clamps; upper jaw; weight complete, 47 lb.

No. 40-A.................................each	**$32.50**

No. 45, chain type: capacity, ⅛ to 4 inch; base; lower jaw; jaw bolts; tool tray with fittings, jack screw assembly; chain screw handle and nut; link chain and screw; weight complete, 51¾ lb.

No. 45.................................each	**$34.80**

Martin Vise Stands and Pipe Benders

With Hinged Vise

This apparatus is designed for use wherever pipe must be cut, threaded or bent; can be picked up at any time and moved from place to place. There are no bolts, screws or braces to remove. Does not have to be fastened to the floor, walls or ceiling; will not tilt, upset or skid.

Convenient for cutting and threading pipe. For these operations, the pipe is fastened in the vise and rests in the bending attachment which keeps it rigid and in line.

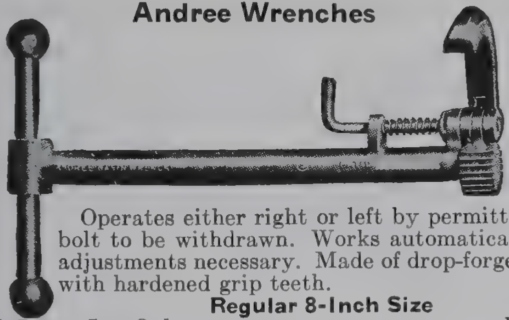
Equipped with a special device which will bend pipe from ⅛ to ¾-inch diameter easily without kinking. Capacity, with chain vise, 2-inch pipe; with hinged vise, 2½-inch pipe.

Weight complete, with hinged vise, 59 pounds; with chain vise, 51 pounds.

No.	Description	Each
*1C	Stand with Legs, less Vise..................	$35.00
*1D	Stand less Legs, less Vise..................	29.00
†1G	Stand with Legs, less Vise..................	35.00
†1H	Stand less Legs, less Vise..................	29.00
....	Vise Only..................	14.08

*Drilled for hinged vise. †Drilled for chain vise.

Andree Wrenches



Operates either right or left by permitting the bolt to be withdrawn. Works automatically—no adjustments necessary. Made of drop-forged steel with hardened grip teeth.

Regular 8-Inch Size

With Large Jaw Only	each	$3.50
With Large and Small Jaws	each	5.00

Longer 12-Inch Size

With Large Jaw Only	each	$4.50
With Large and Small Jaws	each	6.00
Extra Large Jaw Only	each	2.00

Ridgid Chain Bench Vises

Capacity, ⅛ to 8 Inches

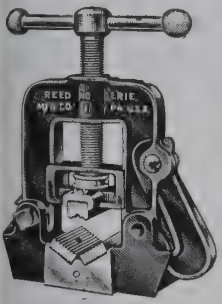
Special malleable frame, jaws of high quality tool steel.

Has pipe rest and bender.

No.	Each	Cap. In.	Bending Cap. In.	Ship: Wt. Lb.
BC-2	$7.10	⅛–2	1	5½
BC-4	14.40	¼–4	1	12½
BC-5	19.30	¼–5	1	13
BC-6	25.95	½–6	1	20
BC-8	34.60	½–8	1¼	36

Reed Long Jaw Pipe Vises

The long jaws eliminate the tendency to mar, bend or crush any kind of pipe. The lower jaws are reversible, doubling their period of efficient service.

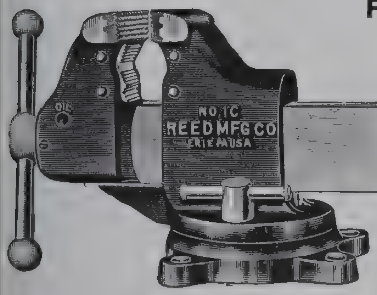


Equipped with positive devices for taking up wear. Has strong and convenient pipe bender.

No.	Each	Jaws (3) per Set	Holds Pipe Inches	Weight Pounds
00	$9.20	$3.80	⅛ to 1½	6
0	10.80	4.60	⅛ to 2	8
1	12.80	4.60	⅛ to 2½	11
2	19.20	6.50	⅛ to 3½	18
3	26.70	9.20	⅛ to 4½	27

Reed Combination Pipe Vises

Swivel Base



Designed for severe service.

Pipe jaws, milled from solid tool steel bars, tempered in oil, do not extend beyond vise jaws and will not interfere when vise is used as a machinist's vise.

No.		1C	2C	3C	4C
Vises	each	$35.00	$48.00	$76.00	$120.00
Jaws (2)	per set	5.40	7.20	12.00	18.00
Holds Pipe	in.	⅛ to 2½	⅛ to 3½	⅛ to 4½	⅛ to 6
Width Jaw	in.	3½	4½	5	6
Weight	lb.	54	83	120	185

Wilton Combination Pipe and Bench Vises

Body is made of a high grade alloy with more than 60,000 pounds tensile strength per square inch. Pipe jaws are milled from chunks of solid steel and are case hardened. Practically indestructible; recognized standard in petroleum industry. Swivel or stationary base types.

With Swivel Base

No.		C-0	C-1	C-2
Each		$35.00	48.00	76.00
Jaw Width	inches	3½	4½	5
Pipe Capacity	inches	⅛—2½	⅛—3½	⅛—4½
Opening	inches	4¼	5¾	6½
Weight	pounds	47	68	113

With Stationary Base

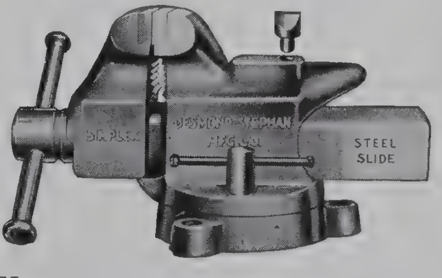
No.		CN-0	CN-1	CN-2
Each		$32.00	43.00	70.00
Jaw Width	inches	3½	4½	5
Pipe Capacity	inches	⅛—2½	⅛—3½	⅛—4½
Opening	inches	4¼	5¾	6½
Weight	pounds	42	61	102

Extra Jaws

For Vise:				
Swivel Base No.		C-0	C-1	C-2
Stationary Base No.		CN-0	CN-1	CN-2
Steel, Serrated	each	$4.65	$6.20	$7.60
Steel, Smooth	each	4.65	6.20	7.60
Brass, Smooth	each	6.65	8.10	9.40
Width Jaws	inches	3½	4½	5

Simplex Utility Vises

Stationary Jaws—Swivel Base



For light shop, garage and home use.

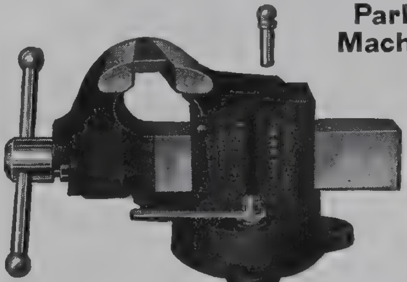
Made with square thread enclosed in steel slide. Removable hardened steel jaws.

Finished in bright red enamel.

No.		300	350	400	500
Each		$9.50	10.90	15.80	17.80
Size Jaws	inches	3	3½	4	5
Jaws Open	inches	3½	4½	5	5
Shipping Weight	pounds	12	19	25	30

Parker's Victor Machinists' Vises

Swivel Jaw Swivel Base

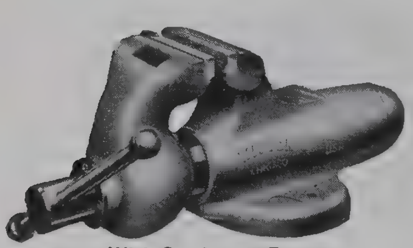


For use in shops where tapered pieces of work are to be held.

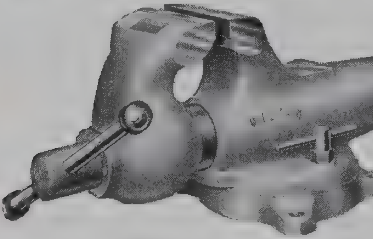
By removing the pin, the top of the back jaw can be swiveled to hold odd shaped pieces for filing, etc.

No.		383½	384½	386
Each		$40.00	56.00	120.00
Jaw	inches	3½	4½	6
Vise Opens	inches	5	6	9½
Weight	pounds	51	71	174

Wilton Machinists' Bench Vises



With Stationary Base



With Swivel Base

Made of strong, heavy, malleable alloy body.

Fully enclosed dirt-proof design, permanent lubrication.

Swivel base rotates 360° with positive locking power.

Handle has finger-protecting grommets on each end.

Hardened steel serrated jaws installed unless other type specified.

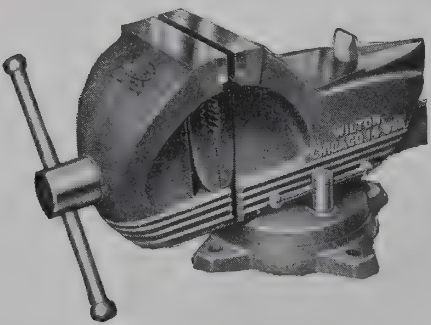
Nos. 250, 400, 450 and 600 can be converted to Wiltomatic power vises.

Width Jaws In.	Opening In.	Throat Depth In.	With Swivel Base No.	Each	Ship. Wt. Lb.	With Stationary Base No.	Each	Ship. Wt. Lb.
2½	3	2	250S	**$19.47**	13	250N	**$15.06**	11
3	4½	2⅝	300S	**26.00**	29	300N	**20.00**	25
3½	5¼	2¾	350S	**30.00**	41	350N	**22.50**	35
4	6½	3½	400S	**34.00**	58	400N	**25.50**	49
4½	7½	4⅛	450S	**40.00**	69	450N	**31.00**	60
5	8	4¼	500S	**60.00**	85	500N	**40.00**	75
6	9	4⅜	600S	**104.00**	127	600N	**78.00**	115

Replacement Jaws

Width Jaws.....inches	2	2½	3	3½	4	4½	5	6
Steel:								
Diamond Serrated, Hardened....each	**$2.30**	**$2.60**	**$3.10**	**$3.60**	**$4.10**	**$4.60**	**$5.80**	**$7.10**
Smooth, Hard or Soft.........each	**2.30**	**2.60**	**3.10**	**3.60**	**4.10**	**4.60**	**5.80**	**7.10**
Brass, Smooth....each	**2.70**	**3.25**	**3.80**	**4.30**	**4.85**	**5.70**	**7.20**	**8.55**
Copper, Smooth...each	**2.70**	**3.25**	**3.80**	**4.30**	**4.85**	**5.70**	**7.20**	**8.55**
Plastic, Smooth...each	**2.10**	**2.40**	**2.85**	**3.30**	**3.80**	**4.30**	**5.15**	**6.10**
Jaw Caps, Brass or Copper, Smooth.each	**2.40**	**2.80**	**3.20**	**3.80**	**4.15**	**4.96**	**6.15**	**9.94**
For Vise No..........	20	250	300	350	400	450	500	600

Wilton Shop King Hardware Vises



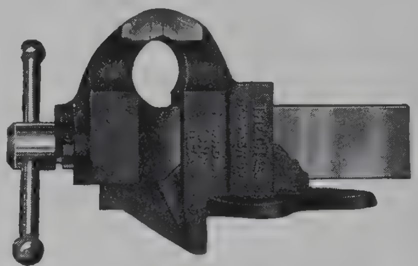
Equipped with removable pipe jaws, cut-off tool, and serrated, hardened steel top jaws. Swivel base locked firmly by slide-bar nut. Red enamel finish.

No.	Each	Jaw Width, In.	Max. Open., In.	Pipe Cap., In.	No. per Case	Ship. Wt., Lb.
633	**$9.50**	3	3½	0–1½	4	16
633½	**10.90**	3½	4	0–1½	4	21
634	**15.80**	4	4½	0–2	3	30
*__635L__	**17.80**	5	5	0–2	2	34
†**635**	**26.00**	5	5	0–2½	1	44

*Light duty. †Heavy duty.

Parker Eclipse Machinists' Vises

Stationary Jaw Stationary Base

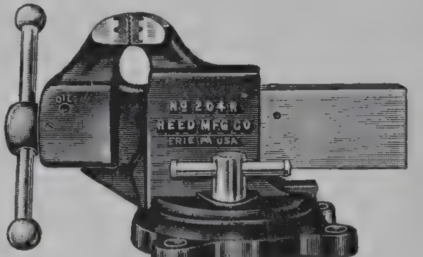


Tension spring and screw in handle hold it in position. Screw is dropforged with one-piece handle. Malleable iron nut. Renewable jaws.

No............	953	953½	954	954½	955	956	958
Each..........	**$20.00**	**22.50**	**25.50**	**31.00**	**40.00**	**78.00**	**150.00**
Jaw........in.	3	3½	4	4½	5	6	8
Vise Opens .in.	4½	5½	6½	7	8	10½	13¾
Wt.........lb.	23	35	46	63	85	132	245

Reed Machinists' Vises

Stationary Jaw—Swivel Base

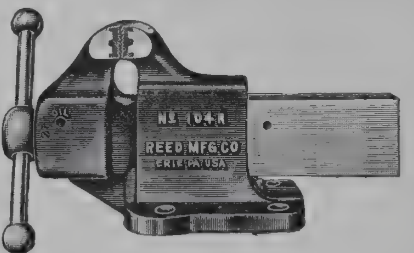


Semi-steel castings. Screw and nut made of high carbon alloy steel. Hardened alloy steel jaw facings, securely welded on. All parts interchangeable.

No..........	203R	203½R	204R	204½R	205R	206R	208R
Each........	**$26.00**	**30.00**	**34.00**	**40.00**	**60.00**	**104.00**	**196.00**
Width Jaw..in.	3	3½	4	4½	5	6	8
Jaws Open..in.	4	5	6	7	8	10	12
Weight...lb.	27	38	51	66	89	153	278

Reed Machinists' Vises

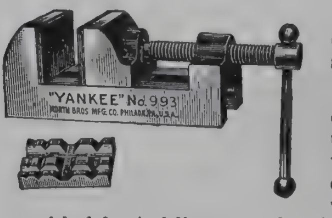
Stationary Jaw—Stationary Base



Made of steel and iron mixture. Alloy steel jaw facings welded on. Screw and nut heat-treated, high carbon alloy steel. Hardened and tempered. All parts interchangeable.

No..........	103R	103½R	104R	104½R	105R	106R	108R
Each........	**$20.00**	**22.50**	**25.50**	**31.00**	**40.00**	**78.00**	**150.00**
Width Jaw...in.	3	3½	4	4½	5	6	8
Jaws Open...in.	4	5	6	7	8	10	12
Weight....lb.	22	30	45	60	77	139	247

Yankee Vises



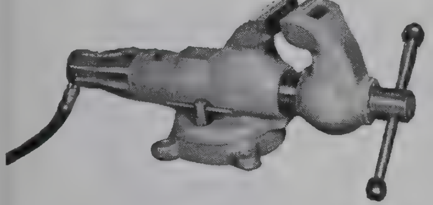
"YANKEE" No 993
NORTH BROS MFG CO PHILADA PA USA

Can be used on bench, or on a bench drill or other small machines.

The vise is accurately machined all over so it can be used on either side or end as well as on base in drill press, etc. A hardened steel block with V-shaped grooves is provided for holding round or irregular shaped work.

No.	Each	Base, In. Length	Base, In. Width	Jaws, Inches Opening	Jaws, Inches Depth	Jaws, Inches Width	Ht. Overall In.	Lgth. Overall In.	Net Wt. Lb.
991	**$9.00**	4⅝	1½	1½	⅞	1½	1½	4⅝	1⅜
992	**10.50**	4⅞	2	1$\frac{15}{16}$	1¼	2	2$\frac{1}{16}$	6	3⅜
993	**16.40**	7¼	2¾	3	1⅞	2¾	3	8¾	9$\frac{5}{16}$
994	**33.60**	10½	4	4	2⅛	4	4⅛	12¼	28

Wilton Wiltomatic Power Bench Vises



Actuated by air-hydraulic pressure. Operated with air pressure from 15 to 150 pounds per square inch.

May be used as a manual bench vise or power bench vise.

Incoming air pressure is fed into a booster chamber, where it is converted into hydraulic force. Clamping force is adjustable from zero to maximum. Air reduction valve may be placed in system to control air pressure and determine locking force between jaws. Presetting of jaws is rapidly accomplished by turning vise handle. Length of power stroke adjustable up to ½-inch without tools.

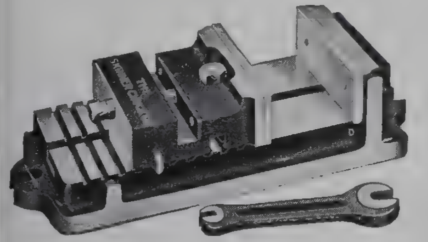
Furnished complete with safety stop, foot pedal or hand control, air-hydraulic booster, and 11 feet of hose with ¼-inch coupling.

Wiltomatic Bench Vises

No.	Each	Jaw Width In.	Jaw Opening In.	*Clamping Force Lb.	Ship. Wt. Lb.
With Swivel Base					
WS-250	**$95.60**	2½	3	2513	28
WS-400	**124.50**	4	7	4712	74
WS-450	**130.50**	4½	8	4712	84
WS-600	**238.00**	6	9	6891	162
With Stationary Base					
WN-250	**$91.19**	2½	3	2513	26
WN-400	**115.50**	4	7	4712	67
WN-450	**121.50**	4½	8	4712	77
WN-600	**212.50**	6	9	6891	151
Wiltomatic Combination Pipe and Bench Vises — With Swivel Base					
WC-1	**$138.50**	4½	⅛–3½	4712	88
WC-2	**210.00**	5	⅛–4½	4712	148

*At 100 pounds air pressure.

Series DPV Skinner Drill Press Vises

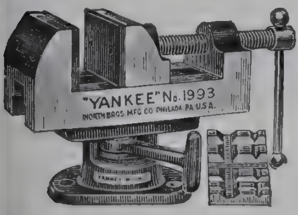


Semi-Steel Body

For all around work on drill presses. Clamp work for all drilling in one plane. Drill. Turn vise on edge for second operation in plane at right angles — without reclamping.

No.	**3½DPV**	**4½DPV**	**5½DPV**	**7½DPV**
Each	**$44.00**	**52.00**	**61.00**	**105.00**
Width Jaw . . . in.	3⅝	4 11/16	5 9/16	7½
Length Base . . . in.	10	13¾	15¼	20¾
Depth Jaw . . . in.	1⅜	2 1/16	2 1/16	2½
Jaws Open . . . in.	3⅝	5¼	6½	8⅞
Space Required . . . in.	10x4¼	14x5¼	15¼x6⅛	20¾x9
Ship. Wt. . . . lb.	13	34	40	92

Yankee Swivel Base Vises


"YANKEE" No. 1993
NORTH BROS. MFG CO PHILADA PA U.S.A.

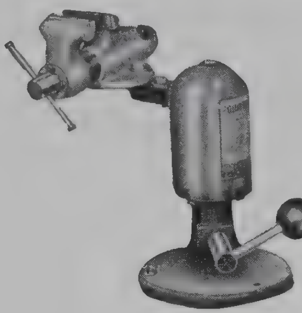
Can be used on bench, or on a bench drill. Detached from base by loosening one screw. Can be set on either side or end as well as on bottom in drill press, etc. Hardened steel block with V-shaped grooves is provided for holding round or irregular work.

Packed 1 in a box.

No.	**1991**	**1992**	**1993**	**1994**
Each	**$13.00**	**15.80**	**22.00**	**45.20**
Diam. Swivel Base . . . inches	2½	3¼	4½	6½
Jaw Opening . . . inches	1½	1 15/16	3	4
Jaw Depth . . . inches	⅞	1¼	1⅞	2⅛
Jaw Width . . . inches	1½	2	2¾	4
Height Overall . . . inches	3⅛	4⅛	5⅞	7⅝
Length Overall . . . inches	4⅝	6	8¾	12¼
Net Weight . . . pounds	2⅜	5⅜	13½	41

Wilton Mechanical Powrarms

With Wilton Precision Vise



Recommended for medium duty work. Equipped with mechanical arm which locks ball in any convenient working position.

Price includes complete unit with vise and mounting bracket.

No.	**3012**	**3015**	**3013**
Each	**$38.56**	**40.66**	**45.60**
Vise No.	20N	25N	30N
Width Jaws . . . inches	2	2½	3
Shipping Weight . . . pounds	17	24	32

No. 346 Wilton Junior Powrarms

With Cam Acting Vise

Consists of No. 308 cam acting vise mounted on Junior Powrarm.

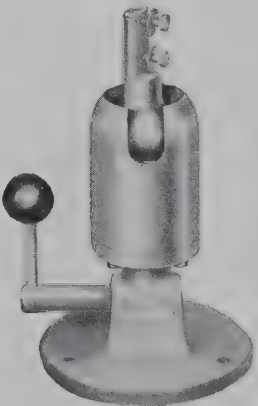
Developed for high speed mass production.

Ideal for soldering and light electronic assembly.

Cam travel, 3/16 inch.

No. **346**, with Cam Vise Attached; Shipping Wt. 8½ Lb. . . . each	**$21.30**
No. **308**, Cam Vise Only; Ship. Wt. 4½ Lb. . . ea.	**8.50**

No. 301 Wilton Mechanical Powrarms



This unit, when bolted to bench, will safely support work pieces up to 70-pound weight at any angle. Vise, or special holding fixtures can be bolted to the arm.

Assemblies can be placed at any angle on a 360-degree horizontal plane, 180-degree vertical plane and 360-degree axial plane and any combination of positions simultaneously.

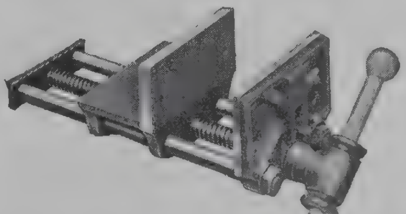
Base diameter, 6 inches.

Height to crown top, 8½ in.

Shipping weight, 13 pounds.

No. **301** . . . . each **$25.60**

Wilton Professional Woodworkers' Vises



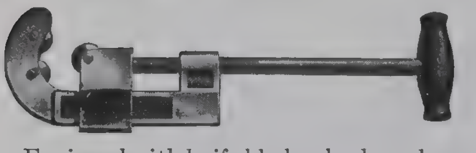
Sturdy, accurately machined with hardwood or round steel handles and dog in front jaw.

Titannut on Nos. 63 and 64 permits switching from free sliding action to lock action automatically; can be tightened a full turn or more after contact with work piece. Screws for mounting furnished.

Continuous Screw Type			Rapid-Acting Type					
No.	Each	Wt. Lb.	No.	Each	Wt. Lb.	Type of Hdle.	Jaw Size In.	Max. Open. In.
61	**$19.50**	32	**63**	**$23.00**	33	Steel	4x 7	9
62	**22.50**	37	**64**	**26.00**	38	Steel	4x10	12
61W	**19.50**	30	**63W**	**23.00**	31	Wood	4x 7	9
62W	**22.50**	35	**64W**	**26.00**	36	Wood	4x10	12

All models furnished without dog at $1.00 less.

Barnes Type Pipe Cutters

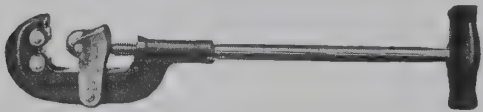


Three wheel style, used where cutter cannot be revolved entirely around pipe.

Equipped with knife blade wheels, unless otherwise specified without extra charge.

No.	Complete Each	Wheels Each	Pins per Dozen	Cuts Pipe Inches	Weight Pounds
1B	$8.10	$.70	$1.45	⅛ to 1	3
2B	10.80	.80	1.45	½ to 2	5
3B	18.00	1.10	1.45	1½ to 3	9
4B	36.30	1.40	2.95	2½ to 4	14
5B	54.00	1.55	2.95	4 to 6	23
6B	72.25	1.55	2.95	6 to 8	28
6½B	81.70	1.55	2.95	8 to 10	34
7B	90.10	1.55	2.95	9 to 12	51

Saunders Type Pipe Cutters



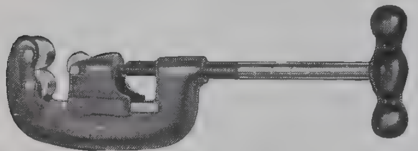
Made of certified malleable iron.

For use only where the cutter can be revolved entirely around the pipe. Has one wheel and 2 rollers.

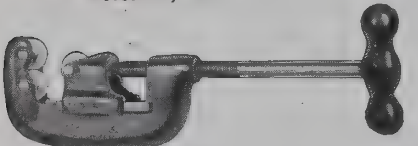
No.		1S	2S	3S	4S	5S
Complete	ea.	$6.60	$10.00	$16.50	$33.10	$49.45
Wheels	ea.	.70	.80	1.55	1.55	1.55
Rolls	ea.	.30	.55	.85	.85	.85
Pins	ea.	1.90	1.90	2.85	2.85	2.85
Cuts Pipe	in.	⅛–1	1–2	2–3	2½–4	4–6
Wt. Each	lb.	3	6	11	15	23

Wheels, rolls and pins for Nos. 3S and 5S are the same.

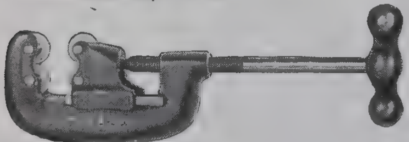
Reed Convertible Pipe Cutters



No. 2-1, Roller Cutter



No. 2-3, 3-Wheel Cutter



No. 2-4, 4-Wheel Cutter

Basic model is roller cutter, preferred where conditions permit a complete swing of the tool. Rollers are in hook where they provide a solid base when positioning tool on pipe, and single razor-blade wheel is in sliding block. The wheel is always in plain sight where it can be lined up easily with a cut-off mark on the pipe. The roller cutter is also available in a 4-wheel and a 3-wheel model. The 4-wheel cutter is for ditch work and other close-quarter situations.

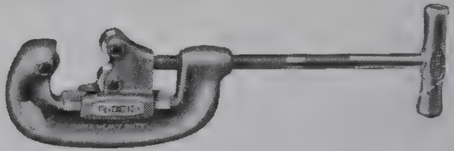
Cutter can be quickly changed over. Simply remove rollers and 1-wheel sliding block, insert the 2-wheel block and replace rollers with wheels. To convert to a 3-wheel cutter, substitute wheels for rollers.

No.		2-1	2-3	2-4
Complete	each	$12.60	$12.60	$14.70
Rollers	each	.66	.66	.66
Pins	each	.33	.33	.33
Razor Blade Wheels	each	1.00	1.00	1.00
*Capacity	inches	⅛ to 2	⅛ to 2	½ to 2
Weight	pounds	6	6	6.4

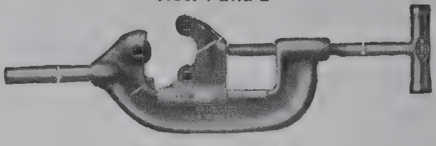
2-Wheel Sliding Block for Converting Roller or 3-Wheel Cutter into 4-Wheel, Complete with Cutter Wheel and Pins....each **$4.80**

*Larger sizes are also available, prices on request.

Ridgid Heavy Duty Pipe Cutters



Nos. 1 and 2



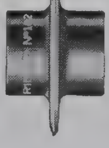
Nos. 3, 4 and 6

Equipped with either heavy duty cutter wheels or Ridgid patented thin blade wheel; may be made 3 wheel.

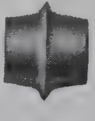
No.	1	2	3	4	6
Each	$8.10	10.85	18.00	36.30	54.00
Capacity...inches	⅛ to 1¼	⅛ to 2	1 to 3	2 to 4	4 to 6
Weight....pounds	6½	7½	15	19½	24¼

HEAVY-DUTY 1&2 RIDGID

Heavy Duty Wheel

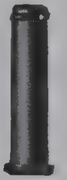


Thin Wheel



Wheel for Cast Iron Pipe

Cutter Roll



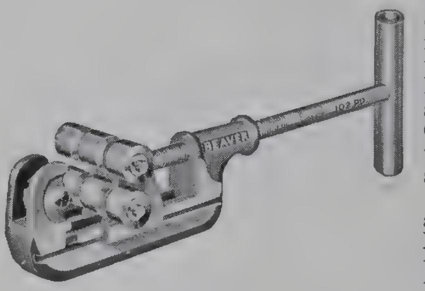
Cutter Roll Pin

No.	Std. Thin Wheel Each	Hvy. Duty Wheel Each	Cast Iron Wheel Each	Frame Each	Screw Hdle. Each	Pipe Hdle. Each	Roll Housing Each	Roll Each	Pin and Clip Each	Wheel Spacer Each
1	$.70	$.80	$.70	$3.70	$1.75	....	$2.40	$.50	$.30	...
2	.70	.80	.70	6.60	2.80	....	2.40	.50	.30	...
3	1.15	1.35	1.25	7.95	5.45	$1.90	4.80	1.20	.40	...
4	1.15	1.35	1.25	24.20	5.45	1.90	8.25	1.20	.40	...
6	....	1.45	1.95	37.20	5.45	1.90	11.65	1.20	.40	$.85

No. 102-PD Beaver Wheel Pipe Cutters

For Electric Power Drives

Capacity, ⅛ to 2 Inches



Double row of centering wheels, five in all, form wide channel to hold cutter at right angles to pipe. Cutter is bound to track; wheel breakage, eliminated.

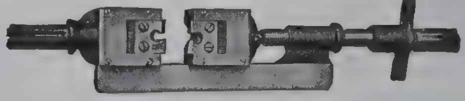
Made of malleable iron with extra long handle for easy two-hand operation.

Shipping Weight, 8 pounds.

No. 102-PD....each **$13.20**

Beaver Square-End Knife Pipe Cutters

No. 1, ⅛ to 1 Inch **No. 5, ½ to 2 Inch**

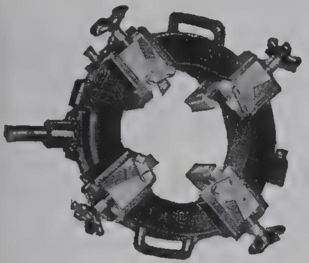


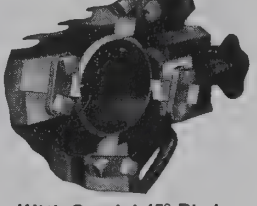
For cutting, grooving or beveling pipe.

This pipe cutter cuts like a lathe tool, each turn removing a thin shaving until the pipe is severed. Leaves no burr to be reamed or filed, or to reduce the capacity of the pipe, and threading dies start easily and with less wear.

No.		1	5
Complete	each	$24.00	$27.50
Extra Cutting Knives	per set	2.00	3.00
Grooving Knives	per set	....	5.00
Beveling Knives	per set	....	8.00
Cuts Pipe	inches	⅛–1	½–2
Shipping Weight	pounds	8	14

Toledo Ratchet Geared Pipe Cutters





With Special 45° Blades

This tool cuts off large pipe quickly and accurately, and leaves a straight, square-end cut without burr.

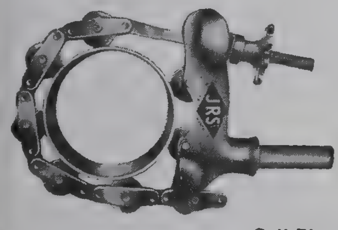
Chuck jaws are case-hardened with micrometer marks; no bushings are necessary. When cutting off pipe while cutter frame is rotating, either by means of the ratchet handle or a Toledo Power Drive, the knives are fed into the pipe by hand; the operator gives the hand feed wheel a part turn at each revolution. The knives are made of high speed steel, carefully tempered and double-ended.

Special cutter blades for cutting a 45° bevel with a narrow shoulder on end of pipe available on special order.

A complete tool consists of tool body, cutter knives, set-screw wrench, ratchet handle; packed in wood box.

No.	Description	Each	Ship. Wt. Lb.
250	Geared Pipe Cutter Comp., 2½ to 6-In. Pipe	$170.00	122
300	Geared Pipe Cutter Comp., 4½ to 8-In. Pipe	188.00	164
350	Geared Pipe Cutter Comp., 7 to 10-In. Pipe	194.00	173
400	Geared Pipe Cutter Comp., 9 to 12-In. Pipe	210.00	207
...	Cutter Blades, Set of 4	7.20	1
...	Special 45° Bevelled Cutter Blades, Set of 4	10.80	1¼
...	Adapters, Set of 2	10.80	1
...	Special Victaulic Grooving Blades, Set of 4	20.00	1¼

J.R.S.-Talon Easy Pipe Cutters



Readily adaptable in any position. Can be used for pipe already installed in difficult positions. Cutter wheels made of high grade tool steel; have knife edge.

To operate, place chain around pipe, screw gnarled nut to tight compression of spring, and oscillate.

Soil Pipe Cutters

No.	1	2
Each	$12.40	13.90
Pipe Size, inches	1½–4	2–6

Heavy Duty Pipe Cutters with Automatic Compression For Steel, Iron or Corporation Pipe, Wrought Iron Pipe, Stacks, Etc.

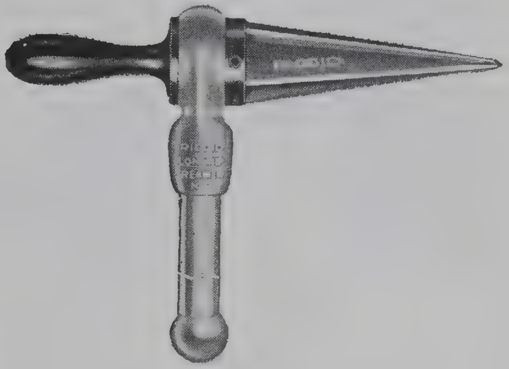
No.	Each	Pipe Size Inches	No.	Each	Pipe Size Inches
3HD	$40.33	2½– 6	7HD	$118.07	8–16
4HD	47.93	2½– 8	8HD	150.11	8–18
5HD	55.33	2½–10	9HD	183.84	8–20
6HD	63.93	2½–12	10HD	209.15	9–24
6½HD	102.89	8 –14	......	......	....

Item	Each
Cutter Wheels for No. 3 to No. 10 Cutters	$1.40
Cutter Wheel Pins for: No. 3 to No. 6 Cutters	.37
Cutter Wheel Pins for: No. 6½ to No. 10 Cutters	.59

"TOLEDO"
TRADE-MARK REGISTERED U.S. PAT. OFFICE

Ridgid LonGrip Pipe Reamers

5-Fluted—Ratchet Type



Long taper flutes cut inside burr quickly from inside of pipe or conduit with practically no pressure. Does not reduce wall of threading end nor flare or split pipe.

No. 2

Capacity, ⅛ to 2 inches. Complete with ratchet handle. Reamer unit may be purchased separately for use in No. 2-00R small ratchet die handle. Ratchet handle can be used with unit shown as well as with No. 2-00R die heads.

Item		Price
No. 2, Complete; Weight, 7¾ Pounds	each	$13.30
No. 2, Reamer Unit Only	each	10.40
No. 2, Reamer Cone Only	each	6.00
No. 2-00R, Ratchet Handle	each	2.90

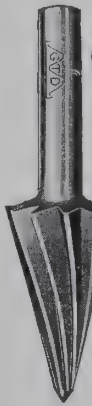
No. 3

Capacity, ⅜ to 3 inches. Complete with ratchet handle, No. 3-111R, for use with reamer unit or with No. 3-111R die heads.

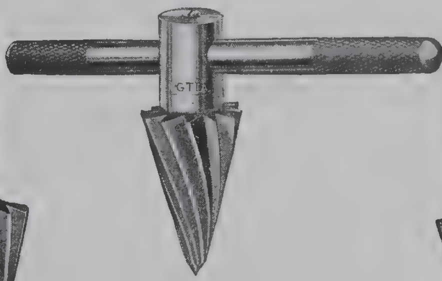
Item		Price
No. 3, Complete; Weight 11½ Pounds	each	$17.90
No. 3, Reamer Unit Only	each	14.80
No. 3, Reamer Cone Only	each	8.95
No. 3-111R, Ratchet Handle	each	3.10

GTD Spiral Fluted Burring Reamers

Carbon Steel



Nos. 232 to 234
Round Shank



Nos. 254 and 257
Tee Handle

Nos. 241 to 244
Bit Brace Shank

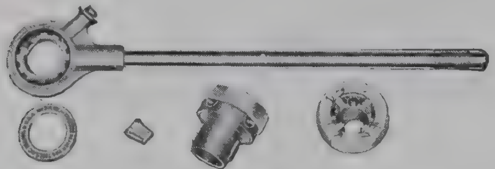
Designed for removing burrs caused by cutting pipe, and also for counter-sinking. Can be used in a variety of materials. Spiral flute reduces chattering.

Made of high grade steel.

No.	Each	Style of Shank	Capacity Pipe Inches	Diameter—Inches—Point	Diameter—Inches—Large End
232	$2.24	½-Inch Round	⅛ to 1	3/16	1¼
233	2.70	½-Inch Round	¼ to 1¼	¼	1 15/32
234	5.41	½-Inch Round	¼ to 2	¼	2 17/64
241	1.80	Bit Brace	⅛ to ½	3/16	47/64
242	2.24	Bit Brace	⅛ to 1	3/16	1¼
243	2.70	Bit Brace	¼ to 1¼	¼	1 15/32
244	5.41	Bit Brace	¼ to 2	¼	2 17/64
254	9.14	T Handle	¼ to 2	¼	2 17/64
257	43.20	T Handle	1½ to 3½	1½	3⅝

No. 3 Beaver Enclosed Ratchet Threaders

For ⅛ to 1-Inch Pipe—¼ to 1-Inch Bolts



Ratchet mechanism fully enclosed, no teeth on die head to become mutilated. Oil holes in die heads for easy oiling and chip clearance. Dies square in shape, no weak sections to break. Dies can be reversed for threading pipe end too short to pass through die head. Right or left hand.

No. 3 Complete, for Pipe Only

Size . . . in.	½–¾	¼–¾	⅜–1	¼–1	⅛–1
No. 3 . . . each	$14.50	24.40	24.40	29.35	34.30
Ship. Wt. . . . lb.	8	9½	10	11	12

Pipe Dieheads with Dies

Size . . . in.	⅛	¼	⅜	½	¾	1
Each . . .	$4.95	4.95	4.95	4.95	4.95	4.95
Ship. Wt. . . . lb.	1¼	1¼	1¼	1¼	1½	1¾

¾-Inch 20-Thread Brass Diehead with Dies, Shipping Weight, 1½ Pounds . . . each	$6.10
⅝ or ¾-Inch 27-Thread Brass Diehead with Dies, Shipping Weight, 1½ Pounds . . . each	6.10

Extra Pipe Dies

Extra Dies, Any Size, Right or Left Hand . . . per set	$3.40

Ratchets Only

No. 3 Ratchet with Handle, Ship. Wt., 3¼ Lb. . each	$4.60

Bolt Dieheads with Dies

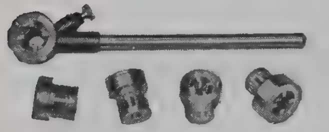
Bolt Dieheads with Dies, Any Size, Right Hand, ¼, 5⁄16, ⅜, 7⁄16, ½, 9⁄16, ⅝, ¾, ⅞ Inch (by 16ths), Shipping Weight, 1½ Pounds . . . each	$6.35
Left Hand Adjustable, Any Size, ¼ to 1 Inch, Shipping Weight, 1½ Pounds . . . each	12.00
Special 1 In., Adj., R. H.; Ship. Wt. 1½ Lb. . . . each	9.65

Straight Thread Conduit Dies

Straight Thread Conduit Dies, ½, ¾ or 1 Inch, Shipping Weight, 1½ Pounds . . . per set	$4.95

No. 00 Toledo Ratchet Pipe Threaders

Capacity, ⅛ to ¾-Inch Pipe Inclusive



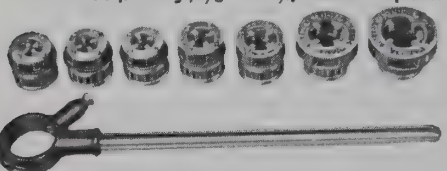
Threads pipe in corners and cuts standard threads of full taper. Die heads instantly changed. Die segments can be removed and reground.

Description	Each	Wt. Lb.
No. 00, ⅛ to ¾-Inch, Complete . . .	$26.80	9½
¼ to ¾-Inch, Complete . . .	22.60	8¼
⅜ to ¾-Inch, Complete . . .	18.40	7
½ to ¾-Inch, Complete . . .	13.80	5½
Ratchet Only . . .	3.80	3
⅛ or ¼-Inch Die Head with R.-H. Dies . . .	4.20	1¼
⅜-Inch Die Head with R.-H. Dies . . .	4.60	1¼
½ or ¾-Inch Die Head with R.-H. Dies . . .	5.00	1½
R.H. Dies, Each Size, ⅛, ¼ or ⅜-Inch . . .	*3.20	⅛
R.H. Dies, Each Size ½ or ¾-Inch . . .	3.20	⅛

*Per set.

No. 11 Toledo Ratchet Pipe Threading Devices

Capacity, ⅛ to 1¼-Inch Pipe Inclusive



Consists of ratchet head and right hand die heads with dies.

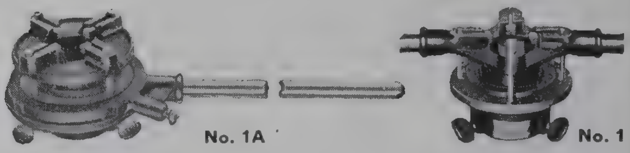
Die heads instantly changed by pulling ratchet pawl knob.

Description	Each	Wt. Lb.
No. 11, Complete, ⅛ to 1¼-In. Size . . .	$41.10	8
Ratchet Only . . .	4.00	3¼
⅛ or ¼-Inch Die Head with R.-H. Dies . . .	4.70	1¾
⅜-Inch Die Head with R.-H. Dies . . .	4.80	1¾
½ or ¾-Inch Die Head with R.-H. Dies . . .	5.60	1¾
1, 1¼-In. Die Head with R.-H. Dies . . .	5.85	1¾
⅛, ¼, ⅜, ½ or ¾-In. Dies Only . . .	3.20	1
1 or 1¼-In. Dies Only . . .	3.80	1

Any combination may be ordered.

Toledo Adjustable Pipe Threading Devices

Capacity, 1 to 2-Inch Pipe



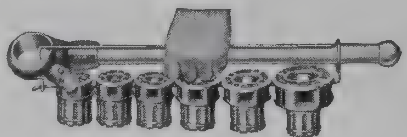
No. 1 consists of tool body, two handles, complete set of 1 to 2-inch right-hand dies and bushings.

No. 1A is same, except uses ratchet only; one handle.

No.	Description	Ship. Wt., Lb.	Each
1	R.H., Plain, Complete, 1 to 2-Inch . . .	20	$27.00
1A	R.H., Ratchet, Complete, 1 to 2-Inch . . .	20	30.00
1A	For Elec. Conduit, Complete, 1 to 2-Inch.	20	39.00
	1, 1¼, 1½-Inch R-H. Dies, Single Set . . . each		3.20
	2-Inch R.H. Dies, Single Set . . . each		3.80

Ridgid Ratchet Pipe Threaders

With Exposed Ratchet



Steel and malleable dies for small pipe.

No. 00-R threads ⅛, ¼, ⅜, ½, ¾, and 1-inch pipe.

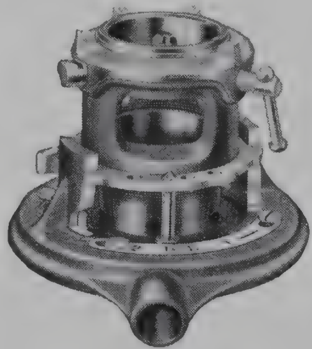
No. 111R threads ⅛, ¼, ⅜, ½, ¾, 1, and 1¼-inch pipe.

Carrier furnished with complete sets. All drop head sets furnished in any size combination.

No. 00-R			No. 111-R					
Capacity, In.	Each	Wt. Lb.	Capacity, In.	Each	Wt. Lb.	Size In.	Alloy Dies Only Per Set of 4	High Speed Dies Only Per Set of 4
⅛ to 1	$30.35	15	⅛ to 1¼	$38.00	21¼	⅛	$3.20	$3.70
⅛ to ¾	24.55	11¼	⅛ to 1	32.50	18¼	¼	3.20	3.70
¼ to 1	26.40	12¼	¼ to 1¼	33.40	19½	⅜	3.20	3.70
¼ to ¾	20.60	10	¼ to 1	27.90	16½	½	3.20	3.70
⅜ to 1	22.45	11	⅜ to 1¼	28.80	17½	¾	3.20	3.70
⅜ to ¾	16.65	9	⅜ to 1	23.30	14½	1	3.80	4.30
½ to 1	18.50	10	½ to 1¼	24.10	16	1¼	3.80	4.30
½ to ¾	12.70	7½	½ to 1	18.60	13	. . .	. . . .	. . . .

Ratchet handle compl.: No. 00-R, $2.90; No. 111-R, $3.10.

No. 65R Ridgid Pipe Threaders



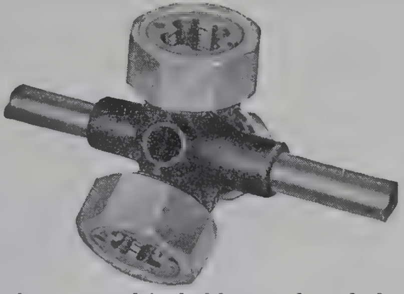
Ratchet threader; threads 4 sizes of pipe, 1, 1¼, 1½, 2 inches, with one set of dies that stay in threader. Cam or plate type workholder, practically automatic; set to pipe size, tighten one screw; no bushings. Automatically kicks out ratchet pawl when standard length thread is cut. Strong all-steel and malleable alloy construction.

No. 65R-C, Ratchet with Cam Workholder; Wt., 24¾ Lb. . . . ea.	$38.00
No. 65R-P, Ratchet With Plate Workholder; Wt., 23¾ Lb. . . . ea.	36.55
High Speed Steel Chaser Dies, 4 in Set; Wt., 8 Oz. . . . per set	***4.90***
Dies for Threading Stainless Steel; Wt., ½ Lb. . . . per set	***5.90***

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

Nye Triad 3-Way Stocks



Dies may be reversed in holder to thread close nipples.

No. **N3W-30**, Complete with ⅜, ¼ and ¾-inch Right-Hand Dies. Weight, 7½ Pounds	each	**$13.00**
No. **N3W-31**, Complete with ½, ¾ and 1-Inch Right-Hand Dies. Weight, 11¼ Pounds	each	**15.00**
Triad Dies Only, ⅜ Inch. Weight, ¼ Pound	each	**3.20**
Triad Dies Only, ½ and ¾ Inch. Weight, ½ Pound, (Pipe or Conduit)	each	**3.20**
Triad Dies Only, 1 Inch. Weight, ½ Pound, (Pipe or Conduit)	each	**3.80**
Ceiling Bushings (Extra), ⅜, ½, ¾ and 1 Inch. Weight, ¼ Pound	each	**.40**

No. ND-1C Nye Genuine Skip-Tooth Conduit Dies

With Threaded Throat

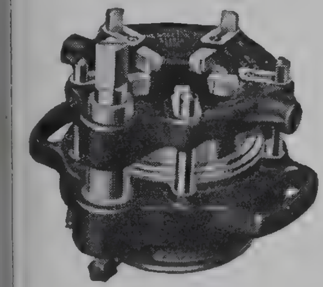
A solid square die; threads conduit pipe. Available in ½, ¾ and 1-inch sizes. Die block, 2½x2½ inches.

Shipping weight, 1 pound.

No. ND-1C	each	**$3.45**

No. 4-P Ridgid Pipe Threaders

For 2½ to 4-Inch Pipe



All steel and malleable pipe threader; gives clean, positive threading. Cuts drip threads and short nipples—is semi-adjustable for over and under size threads.

Furnished with 4 sets of alloy steel chaser dies for 2½, 3, 3½, and 4-in. pipe.

Operates on hand or power unit. Ratchet handle for hand threading furnished with each die stock. No bushings needed.

No. 4P, Weight, 81 Pounds	each	**$98.75**
2½, 3, 3½, 4-In. Alloy Steel Chaser Dies	per set	**8.00**
Special Dies for Conduit Threader Only	per set	**9.00**
Special Dies for Threading Stainless Steel	per set	**11.00**

Toledo Adjustable Pipe Supports

For No. 1-2-4 Power Pipe Machines

An adjustable pipe support consisting of a Y and frame casting with three legs. Provides sturdy, firm support.

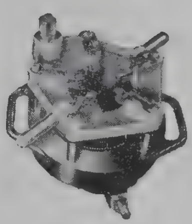
Adjustable for different heights.

Malleable iron castings. Legs consist of pipe.

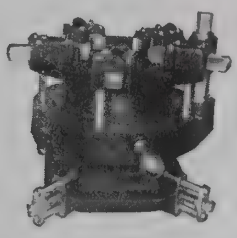
Shipping weight, 62 pounds.

Each	**$26.00**

Toledo Geared Adjustable Pipe Threading Devices



No. 2BR



No. 25BR

Easy operating large threader. Operated either by ratchet handle or instantly converted into power machine with a Toledo power drive. Furnished with complete set of dies, bushings, set-screw wrench, and ratchet handle.

No. 2—Capacity, 2½ to 4-Inch Pipe Inclusive

Shipping weight, 88 pounds.

No. 2, Right-Hand Threads	each	**$95.00**
Dies, Each Size, **2½, 3, 3½** or **4**-Inches	per set	**8.00**

No. 2BR—Capacity, 2½ to 4-Inch Pipe Inclusive

For brass or copper, as well as iron or steel pipe. Fitted with three broad-faced chuck jaws, micrometer line guide bars; no bushings required. Ship. weight, 85 lb.

No. 2BR, Right-Hand Threads	each	**$102.00**
Dies, Each Size, **2½, 3, 3½** or **4** Inches	per set	**8.00**

No. 25BR—Capacity, 2½ to 6-Inch Pipe Inclusive

For brass or copper, as well as iron or steel pipe. Fitted with four broad-faced chuck jaws, micrometer line guide bars; no bushings required. Easy positive die change; extra set of dies furnished. Ship. weight, 175 lb.

No. **25BR**, Right-Hand Threads	each	**$224.00**
Dies, 1 Set Takes All Sizes	per set	**8.50**

No. 2½—Capacity, 5 and 6-Inch Pipe

Shipping weight, 172 pounds.

No. **2½**, Right-Hand Threads	each	**$166.00**
Dies, Each Size, **5** or **6** Inches	per set	**12.00**

No. 3—Capacity, 5, 6 and 8-Inch Pipe

Shipping weight, 206 pounds.

No. **3**, Right-Hand Threads	each	**$224.00**
Dies, Each Size, **5, 6** or **8**-Inches	per set	**12.00**

No. 4—Capacity, 10 and 12-Inch Pipe

Shipping weight, 373 pounds.

No. **4**, Right-Hand Threads	each	**$358.00**
Dies, Each Size, **10** or **12**-Inches	per set	**18.00**

Toledo Geared Adjustable Conduit Threading Devices

No. 2—Capacity, 2½ to 4-Inch Conduit Inclusive

Same as No. 2 above, except for conduit threading.
Shipping weight, 100 pounds.

No. 2, Right-Hand Threads	each	**$108.00**
Electric Conduit Dies, Carbon Steel, Each Size, **2½, 3, 3½** or **4** Inches	per set	**9.00**

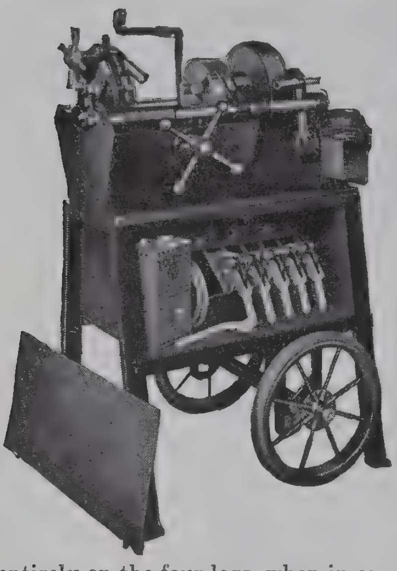
No. 2BR—Capacity, 2½ to 4-Inch Conduit Inclusive

Same as No. 2BR above, except for conduit threading.
Shipping weight, 98 pounds.

No. 2BR, Right-Hand Threads	each	**$114.00**
Electric Conduit Dies, Carbon Steel, Each Size, **2½, 3, 3½** or **4** Inches	per set	**9.00**

Toledo Pipe Machine Steel Stands

For No. 999 Standard and Super Model Power Pipe Machine



Available in either open or closed type. Both types have a shelf. The enclosed stand has a door and hasp, and is fitted with partitioned wooden die head box. Both stands may be furnished without wheels, or with 16-inch steel or 16-inch rubber-tired wheels as may be specified.

The wheels are so placed that the machine balances easily and may be readily moved by one man, or the axle may be swung into a slot allowing the machine to rest entirely on the four legs, when in operation.

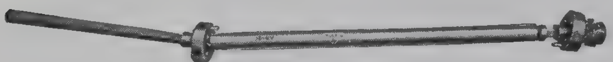
Open Type Stands

Plain Steel Stand, No Wheels	each	$34.00
Plain Steel Stand, With 16-Inch Steel Wheels	each	50.00
Plain Steel Stand, With 16-Inch Rubber-Tired Wheels	each	56.00

Enclosed Type Stands with Partitioned Die Head Boxes

Enclosed Steel Stand, No Wheels	each	$46.00
Steel Stand, With 16-Inch Steel Wheels	each	62.00
Steel Stand, With 16-In. Rubber-Tired Wheels	each	68.00

Toledo Universal Drive Shafts



Especially designed to operate geared threading and cutting tools with power pipe machines. One end of the shaft is held in the chuck of the pipe machine and the socket is slipped over the driving pinion of the threading or cutting tool.

Shaft is extra long, measuring 20 inches, which permits inserting through spindle of No. 999 Toledo Machine and operating tools from rear of machine.

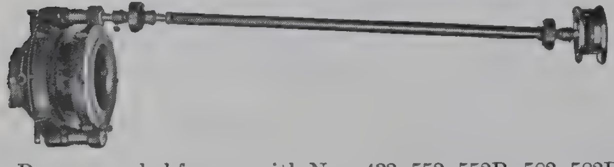
Socket is fitted with set-screw and adjustable for large or small driving pinions of the pipe tools.

Overall length, 64½ inches.

Shipping weight, 32 pounds.

Each.. $32.00

Oster Universal Drive Shafts



Recommended for use with Nos. 432, 552, 552R, 582, 582R portable pipe machine. Drives geared, receding die-stocks up to 12 inches in capacity.

Shaft consists of two parts—a drive bar which is held in the front chuck and centered in the rear chuck, and the long, universal splined shaft which is connected between the drive bar and the square pinion on the die stock.

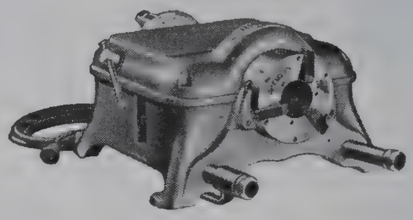
Length, 60 inches.

Weight, 35 pounds.

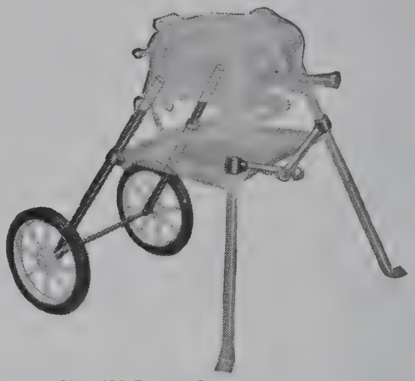
For Use with Nos. 432, 552, 582 Machines	each	$28.50
For Use with Nos. 552R and 582R Machines	each	45.00

No. 400 Ridgid Portable Power Drives

½-Hp. Universal Motor, A.C. and D.C.—For 110 or 220 Volts, 25 to 60 Cycles, Single Phase



No. 400 Power Drive



No. 400 Power Drive with Kit A

Operates all hand pipe threaders, cutters, reamers; streamlined design, light rugged alloy case.

Capacity: pipe, ⅛ to 2 inches—12 inches with geared tools; bolts, ¼ to 1½ inches.

Three-jaw lathe type chuck in front with six adjusting pinions; self-centering workholder in rear turns with pipe; automatic wrench ejectors. Sealed-in lubrication; bronze bearings throughout; pressure grease fittings.

Steady power; universal motor, forward-reverse, 110 volts; 220-volt motor furnished upon request.

Recessed switch in side.

Rubber grommets in feet prevent creeping.

No. **400**, Power Drive Only; Ship. Wt., 152 Lb.	ea.	$240.00
No. **400-A**, Same as No. 400, Except with Speed-Grip Type Chuck	each	250.00
Set of Four Legs; Ship. Wt., 21½ Lb.	each	7.70
Tool Tray with Fittings; Ship. Wt., 12 Lb.	each	9.00
Tool Tray with Fittings and Four Legs; Ship. Wt., 31 Pounds	each	14.45

Kit A

Converts No. 400 Power Drive to a wheel model.

Kit consists of front legs and handles, tray and fittings, and rear legs and wheels.

Kit A.......................................each $35.20

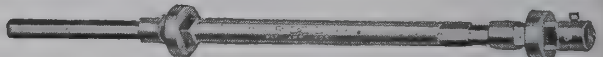
Kit B

Converts No. 400 Power Drive to a wheel model.

Kit consists of rear legs and wheels, and front handles.

Kit B.......................................each $27.50

Ridgid Universal Drive Shafts



Designed for use with geared pipe threaders.

Range, 2½ to 12 inches. Suitable for threading pipe up to 8 inches.

Shipping weight, 26½ pounds.

Each.. $32.00

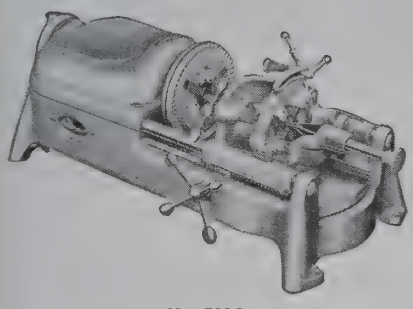
Ridgid Pipe and Bolt Threading Machines

Capacity: 1/8 to 2-Inch Pipe; 1/4 to 2-Inch Bolts

2½ to 12-Inch Pipe with Shaft and Geared Tools

½-Hp. Motor—110/115 or 220/230 Volts, 25 to 60 Cycles

Single Phase, A.C. or D.C.


No. 500A

Made of rugged light weight alloy metal.

Quick-opening die heads, adjustable to over and under size threads. Right hand operation. Rack and pinion feed operated by convenient hand wheel. Self-centering work-holder in rear. Thread and length gage mounted on carriage. Centerless-ground ways. Recessed safety switch on working side. Motor reduction gears have sealed-in lubrication. Drive shaft mounted in lubricated bearings, easily accessible Alemite fittings. Extra large chip pan, fully removable.

Standard equipment: universal motor, standard for 110/115 volts, 220/230 volts on request at no extra charge; reversible, vane type oil pump; five flute cone reamer, 1/8 to 2 inches; self-centering full float wheel and roll type cut-off; 15 foot oil resisting power cord; 4 gallons Ridgoil; three Allen wrenches; one tube grease; one extra cutter wheel. Chuck wrench furnished with No. 500.

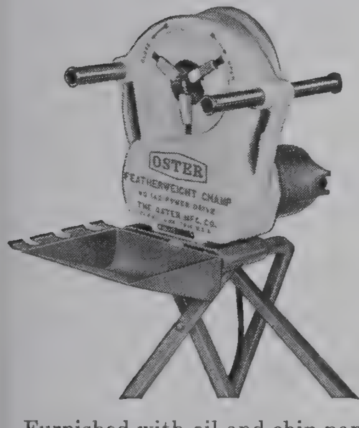
Approximate shipping weight, 275 pounds.

No. **500**, with 3-Jaw, 6-Pinion Wrench Type Chuck ....each	**$375.00**
No. 500A, with Wrenchless Speed Chuck......each	**403.00**

No. 142 Oster Featherweight Champ Portable Power Drives

For Hand Pipe Tools

Standard Range, 1/8 to 2-Inch Pipe



Has a ½-hp. universal motor for 110 volts; reversible, variable speed type; other voltages can be furnished.

Switch is reversing, snap type. Gears and shafts are ball-bearing mounted. Driving gears are made of hardened steel, machine cut. Two driving arms on center line with spindle.

Chuck is wrenchless type with positive, no-slip grip in either right or left-hand direction.

Folding machine stand is detachable.

Furnished with oil and chip pan; pipe rest stand for supporting pipe longer than 6 feet. Aluminum alloy case.

Gasoline engine and air motor drive is available in place of standard motor drive.

Spindle speeds, variable with load, 22 to 36 rpm.

Height overall, less legs, 18¾ inches. Width overall, less legs, 15 inches. Length overall, less stand and pan, 11½ inches. Weight, 75 lb. Shipping weight, 86 lb.

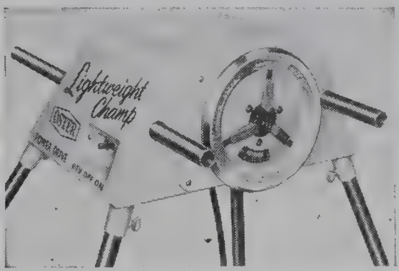
No. **142**, Complete........each	**$245.00**
Pipe Cutter, Roller Type; Range, 1/8 to 2 In....each	**12.65**
Pipe Reamer, Self-Feeding, Spiral Type; Range, 1/4 to 2 Inches........each	**15.00**
Nipple Holder; Range, ½ to 2 Inches........each	**29.00**
No. **114**, Bull Dog Adjustable Die Stock; Range, ½ to 2 Inches........each	**35.00**

No. 432 Oster Lightweight Champ Portable Power Drives

For Hand Pipe Tools

Standard Range, 1/8 to 2 Inch Pipe

½-Hp., 110 Volts Single Phase A.C. or D.C.



Wrenchless type chuck right or left-hand operation; no bar or T-wrench necessary to operate. Revolving rear chuck; universally centering, centers all sizes within range of machine; non-binding.

Streamlined, all-welded case.

Machine cut, hardened steel motor driving gears, ballbearing mounted. Universal, reversible, variable speed type motor, 110 volts, a.c. single phase only, or d.c.; other voltages available. Reversing, snap type switch, protected from oil, dirt and damage.

Two driving and carrying arms, on center line of spindle.

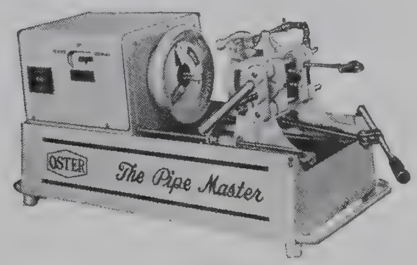
Spindle speeds, variable with load, 22 to 36 rpm.

Overall: height with legs, 41½ inches; height less legs, 13¾ inches; width less legs, 23 inches; length less legs and arms, 21¾ inches. Weight, 134 pounds.

No. **432**, Complete; Ship. Wt. 155 Lb........each	**$245.00**
Pipe Legs........per set of 4	**8.50**
Pipe Cutter, Roller Type, 1/8 to 2" Range......ea.	**12.65**
Pipe Reamer, Self-Feeding, Spiral Type Range 1/4 to 2 Inches........each	**15.00**
Nipple Holder, Range ½ to 2 Inches........each	**29.50**
Drive Shaft for Geared Tools to 8 Inches.....each	**28.50**
No. **114**, Bull Dog Adjustable Die Stock, with Carbon Steel Dies, Range ½ to 2 In........each	**35.00**
Bar Twisting Attachment for ½ and 5/8-Inch Square Bars........each	**15.00**

Oster Pipe Master Portable Pipe Threading Machines

Capacity, ½ to 2-Inch Pipe, Extra Range, 1/8-Inch Pipe
No. 552, Range with Drive Shaft, 2½ to 12-Inch Pipe
Bolt Range, 1/4 to 1½ Inches
½-Hp., 110 Volts, Single Phase A.C. or D.C.



No. 552

No. 552. Quick-opening, adjustable, sliding, floating type die head with three sets of dies to cover ½ to 2-inch pipe range. Furnished with Auto-Grip chuck. Threads both ends of nipples as short as 4½ inches, 2-inch size, without using a nipple chuck.

Roller type cut-off is furnished as standard equipment.

Extended pipe range with special, universal drive shaft.

Universal, reversible, variable speed, geared head type motor; 110 volts standard; other voltages are available.

Spindle speeds, variable with load, 22 to 36 rpm.

Overall: ht., 17¼ in.; width, 17½ in.; length, 39½ in.

Carrying weight, 265 pounds.

No. **552**, with Standard Equipment..........each	**$405.00**

No. 552R. Single rotary type die head; open type vise. Threads bent or straight pipe, long or short lengths; also rods, studs, bolts, etc. Die head is quick-setting, fully adjustable. Same basic features as No. 552; no cut-off device.

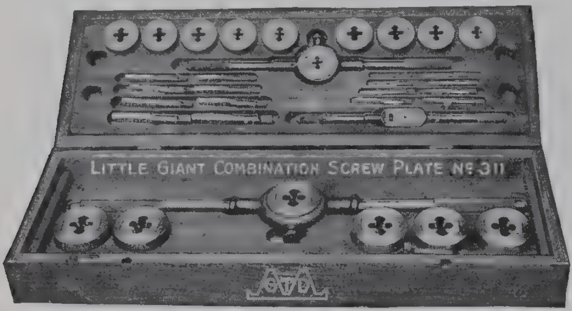
Overall: ht., 17¼ in.; width, 20 in.; length, 39½ in.

Weight of complete machine, 293 pounds.

No. 552-R, with Standard Equipment........each	**$575.00**

Little Giant Combination Screw Plates

For Automobiles and Other Fine Thread Purposes



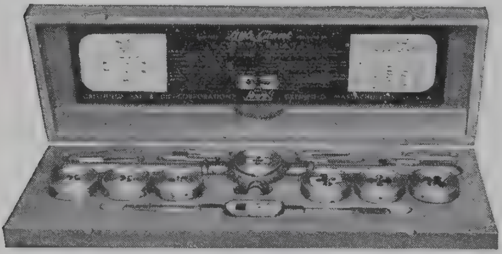
Furnished with N.C. and N.F. threads.

No.	310		311		312	
Per Set	**$51.15**		**92.40**		**134.06**	
Thread Standard	N.C.	N.F.	N.C.	N.F.	N.C.	N.F.
One Hand Tap and One Little Giant Die and Collet for Each Cutting Size	¼^{20}	¼^{28}	¼^{20}	¼^{28}	¼^{20}	¼^{28}
	5/16^{18}	5/16^{24}	5/16^{18}	5/16^{24}	5/16^{18}	5/16^{24}
	⅜^{16}	⅜^{24}	⅜^{16}	⅜^{24}	⅜^{16}	⅜^{24}
	7/16^{14}	7/16^{20}	7/16^{14}	7/16^{20}	7/16^{14}	7/16^{20}
	½^{13}	½^{20}	½^{13}	½^{20}	½^{13}	½^{20}
			9/16^{12}	9/16^{18}	9/16^{12}	9/16^{18}
			⅝^{11}	⅝^{18}	⅝^{11}	⅝^{18}
			¾^{10}	¾^{16}	¾^{10}	¾^{16}
					⅞^{9}	⅞^{14}
					1^{8}	†1^{12}
Diameter Collet...in.	*2		*2, 2¾		*2, 2¾	
Length Stock..inches	14½		14½, 23		14½, 29	
Tap Wrench No.	5		6		5, 7	
Weight.......pounds	14		31		45	

*The 2-inch collets are for sizes ½ inch and smaller; 2¾-inch collets for sizes 9/16 inch and larger; also bit brace shank guide fitting 2-inch caps.

†Also furnished 1^{14} N. S. if specified.

Little Giant Single Stock Screw Plates



N.C. threads furnished unless otherwise ordered. N.F., B.S.F., or Whitworth Standard threads furnished at regular prices if specified.

No.	0	1	2	3	4	5	5½
Per Set	**$34.65**	**30.94**	**40.43**	**45.79**	**50.33**	**48.68**	**54.45**
One Hand Tap and One Little Giant Die and Collet for Each Cutting Size	3/16^{24}						
	¼^{20}	¼^{20}	¼^{20}			¼^{20}	¼^{20}
	5/16^{18}	5/16^{18}				5/16^{18}	5/16^{18}
	⅜^{16}	⅜^{16}	⅜^{16}			⅜^{16}	⅜^{16}
	7/16^{14}	7/16^{14}				7/16^{14}	7/16^{14}
	½^{13}	½^{13}	½^{13}		½^{13}	½^{13}	½^{13}
							9/16^{12}
			⅝^{11}	⅝^{11}	⅝^{11}	⅝^{11}	⅝^{11}
			¾^{10}	¾^{10}	¾^{10}	¾^{10}	¾^{10}
				⅞^{9}	⅞^{9}		
				1^{8}	1^{8}		
Diam. Collet ......inches	2	2	2¾	2¾	2¾	2¾	2¾
Lgth. Stock. in.	14½	14½	23	26	26	23	23
Tap Wrench No.	5	5	6	7	7	6	6
Weight.....lb.	9½	9	17	18	20½	20	22

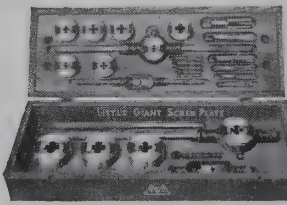
No. 7 Little Giant Single Stock Screw Plates

Cuts 9 sizes, N.C.: ¼^{20}, 5/16^{18}, ⅜^{16}, 7/16^{14}, ½^{13}, ⅝^{11}, ¾^{10}, ⅞^{9}, 1^{8}, hand taps; Little Giant Dies; 2¾-inch diameter collets; stock, 26 inches long and 2 adjustable tap wrenches, No. 5, 11 inches long, and No. 7, 19 inches long.

Weight, 27 pounds per set.

No. 7 .... per set **$72.19**

Little Giant Two Stock Screw Plates



Furnished with small light stock for small cutting sizes and heavier stock for larger sizes. N.C. threads furnished unless otherwise ordered. N. F., B. S. F., or Whitworth Standard threads furnished at regular prices if specified.

No.	8	9	9½	40	50
Per Set	**$51.15**	**74.25**	**79.20**	**128.29**	**171.19**
One Hand Tap and One Little Giant Die and Collet for Each Cutting Size	¼^{20}	¼^{20}	¼^{20}	¼^{20}	¼^{20}
	5/16^{18}	5/16^{18}	5/16^{18}	5/16^{18}	5/16^{18}
	⅜^{16}	⅜^{16}	⅜^{16}	⅜^{16}	⅜^{16}
	7/16^{14}	7/16^{14}	7/16^{14}	7/16^{14}	7/16^{14}
	½^{13}	½^{13}	½^{13}	½^{13}	½^{13}
			9/16^{12}		
	⅝^{11}	⅝^{11}	⅝^{11}	⅝^{11}	⅝^{11}
	¾^{10}	¾^{10}	¾^{10}	¾^{10}	¾^{10}
		⅞^{9}	⅞^{9}	⅞^{9}	⅞^{9}
	..	1^{8}	1^{8}	1^{8}	1^{8}
				1⅛^{7}	1⅛^{7}
				1¼^{7}	1¼^{7}
					1⅜^{6}
					1½^{6}
Diam. Collet..in.	*2, 2¾	*2, 2¾	*2, 2¾	†2¾, 4	‡2¾, 4½
Length Stock..in.	14½, 26	14½, 29	14½, 29	23, 41	26, 52
Tap Wrench No.	6	5, 7	5, 7	6, 7½	6, 8
Weight...pounds	19½	26	26½	57½	84

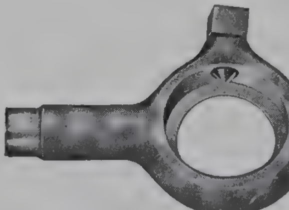
*The 2-inch collets are for sizes 7/16-inch and smaller; 2¾-inch collets for sizes ½ inch and larger.

†The 2¾-inch collets are for sizes ¾ inch and smaller; 4-inch collets for sizes ⅞ inch and larger.

‡The 2¾-inch collets are for sizes 1 inch and smaller; 4½-inch collets for sizes 1⅛ inches and larger.

GTD Stocks

For Adjustable Round Split Dies



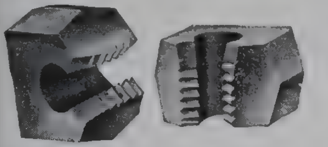
Made from selected malleable iron casting accurately machined and highly polished. Handle is knurled to insure a firm grip.

In screw types 1 or 3.

Screw Type:								
1.........No.	....	**1851**	**1852**	**1852½**	**1853**	**1857**	**1858**	**1859**
3.........No.	**1750**	**1751**	**1752**	....	**1753**	**1757**	....	**1759**
Each	**$1.65**	**1.65**	**1.92**	**2.75**	**3.02**	**3.85**	**5.50**	**9.35**
Diam. Dies...in.	⅝	13/16	1	1 5/16	1½	2	2½	3
Length.......in.	5	6¼	9	11⅞	14	23	29	40
Weight.......lb.	1/16	⅛	5/16	1	1¼	1⅞	2½	2⅞

No. 380 Little Giant Adjustable Dies

Carbon Steel—Fractional Sizes



National Coarse threads furnished unless otherwise specified. Sizes, dimensions and threads not listed are subject to special prices. Left-hand dies furnished in N.C., N.F., B.S.W., and B.S.F. pitches in sizes ¼ to 1½ inches inclusive at regular prices.

In ordering, specify cutting size, no. of threads per inch, and outside diameter of collet in which to be used.

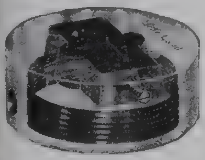
Nom. Size In.	Per Set	For Blank Nos.	No. of Threads per Inch N.C.	N.F.	N.S.	B.S.W.	B.S.F.	Whit.	Std. Pkg.
1/16	$2.16	A-1	..	..	64	..	..	60	6
3/32	2.16	A-1	..	..	48	..	..	48	6
⅛	2.16	A-1	..	..	40	40	..	..	6
5/32	2.16	A-1	..	..	32, 36	..	..	32	6
3/16	2.16	A-1,A	..	..	24, 32	24	..	..	6
7/32	2.16	A-1,A	..	..	24, 32	..	..	24	6
¼	2.16	A-1,A	20	28	24, 32	20	26	..	6
5/16	2.16	A	18	24	32	18	22	26	6
⅜	2.64	B	16	24	....	16	20	26	6
7/16	2.64	B	14	20	....	14	18	26	6
½	3.12	B, C	13	20	12	12	16	26	6
9/16	3.12	C	12	18	....	12	16	26	6
⅝	3.60	C	11	18	....	11	14	26	6
11/16	3.60	C	..	..	11, 16	11	14	..	6
¾	4.08	C	10	16	....	10	12	26	6
⅞	5.76	D	9	14	....	9	11	26	1
1	5.76	D	8	*12	14	8	10	26	1
1⅛	8.16	E	7	12	....	7	9	..	1
1¼	8.16	E	7	12	....	7	9	..	1
1⅜	10.56	F	6	12	....	..	8	6	1
1½	10.56	F	6	12	....	6	8	..	1

*Furnished 1–14NS, if specified.

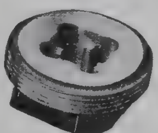
Blank Sizes

Blank No.	A-1	A	B	C	D	E	F
Width Across Flat ....inches	23/64	½	19/32	27/32	1 1/32	1¼	1½

Little Giant Collets



Cap (Phantom View)



Guide

Collet, Complete

The two die halves are laid in the cap, the guide is then screwed in, and when tightened holds the die in a three-angle grip. Adjusted by two small screws in cap which press against ends of die halves. When screw is tightened the whole die, cap and guide becomes rigid as a solid die. Table shows range of sizes for each collet.

When ordering extra collets or guides, give outside diameter of collet and cutting size of die for which it is required.

No. of Collet.......	A1	1	5	20	25
Collet Diam......in.	1¼	2	2¾	4	4½
Cutting Size Dies...	2–14 1/16–¼	3/16–½	3/16–1	⅝–1¼	⅞–1½
Cap...........each	$.88	$1.21	$1.92	$4.40	$5.50
Guide..........each	.38	.55	.93	1.37	1.92
Collet Comp....each	1.26	1.76	2.86	5.77	7.42

Little Giant Stocks

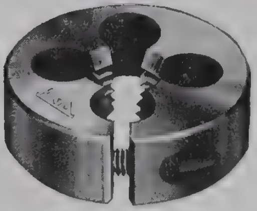
For Screw Plates

Used in all Little Giant screw plates except full mounted.

No................	A1	1	5	5A	5B	20	25
Each..............	$2.75	4.67	6.60	6.60	6.60	13.20	16.50
Length..........in.	7½	14½	23	26	29	41	52
Wt.............lb.	½	1⅞	2¼	2 5/16	2 7/16	5½	9⅝

No. 382 GTD Adjustable Round Split Dies

Carbon Steel



Furnished with American National form of thread. Sizes, dimensions and threads not listed are special. Left-hand dies are special.

Machine Screw Sizes

Screw Gage No.	O.D., In. *⅝ / Thick., In. ¼ Each	13/16 / ¼ Each	1 / ⅜ Each	No. of Threads per Inch N.C.	N.F.	N.S.
0	$1.62	$1.87	....	..	80	..
1	1.62	1.87	....	64	72	56
2	1.43	1.62	....	56	64	..
3	1.25	1.43	....	48	56	..
4	1.12	1.25	....	40	48	32, 36
5	1.12	1.25	....	40	44	..
6	1.12	1.25	$1.56	32	40	36
8	1.12	1.25	1.56	32	36	40
10	1.12	1.25	1.56	24	32	30
12	1.12	1.25	1.56	24	28	32
14	1.12	1.25	1.56	..	..	20, 24

*Open adjusting type.

Fractional Sizes

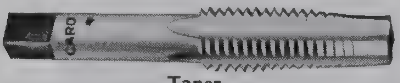
Cutting Size In.	Outside Diameter, Inches 13/16 / Thickness, Inches ¼ Each	1 / ⅜ Each	1 5/16 / 7/16 Each	1½ / ½ Each	2 / ⅝ Each	2½ / ¾ Each	3 / 1 Each
1/16	$1.87	....	....	....	....	....	....
3/32	1.43	....	....	....	....	....	....
⅛	1.25	$1.56	....	....	....	....	....
5/32	1.25	1.56	....	....	....	....	....
3/16	1.25	1.56	....	....	....	....	....
7/32	1.25	1.56	....	....	....	....	....
¼	1.25	1.56	$2.50	$2.50	$4.37	....	....
5/16	1.25	1.56	2.50	2.50	4.37	....	....
⅜	....	1.56	2.50	2.50	4.37	....	....
7/16	....	1.56	2.50	2.50	4.37	....	....
½	....	....	2.50	2.50	4.37	$6.25	....
9/16	....	....	....	2.50	4.37	6.25	....
⅝	....	....	....	2.50	4.37	6.25	....
11/16	....	....	....	....	4.37	6.25	....
¾	....	....	....	....	4.37	6.25	....
⅞	....	....	....	....	4.37	6.25	....
1	....	....	....	....	....	6.25	$12.50
1⅛	....	....	....	....	....	....	12.50
1¼	....	....	....	....	....	....	12.50
1⅜	....	....	....	....	....	....	12.50
1½	....	....	....	....	....	....	12.50

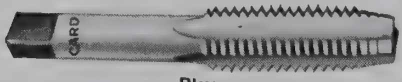
Cutting Size In.	No. of Threads per Inch N.C.	N.F.	N.S.	British Standard Whit.	Fine
1/16	..	..	64	60	..
3/32	..	..	48	48	..
⅛	..	..	40	40	..
5/32	..	..	32, 36	32	..
3/16	..	..	24, 32	24	32
7/32	..	..	24, 32	24	28
¼	20	28	24, 32	20	26
5/16	18	24	32	18	22
⅜	16	24	..	16	20
7/16	14	20	..	14	18
½	13	20	..	12	16
9/16	12	18	..	12	16
⅝	11	18	..	11	14
11/16	..	..	11, 16	11	14
¾	10	16	..	10	12
⅞	9	14	..	9	11
1	8	12	14	8	10
1⅛	7	12	..	7	9
1¼	7	12	..	7	9
1⅜	6	12	..	6	8
1½	6	12	..	6	8

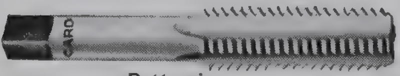
S. W. CARD PRODUCTS STOCKED IN FORT WAYNE ONLY

Card Standard Hand Taps

High Speed **Steel** — **No. 2030 Cut Thread**
No. 3030 Ground Thread
Carbon Steel — **No. 1030**


Taper


Plug


Bottoming

Furnished with American National form of thread in taper, plug or bottoming style.

High speed steel taps are standard in cut thread and ground thread. Cut thread taps are regularly supplied in sizes 1/4 to 9/16 inches inclusive only. Ground thread taps are furnished unless otherwise specified. When the limit is not specified they will be furnished as follows: 1/4 to 3/4 inches inclusive, GH 3 Limits; 7/8 to 1 1/2 inches inclusive, GH 4 Limits.

Carbon steel taps are standard in cut thread.

Left-hand taps are special.

Sizes and dimensions not listed are special.

High Speed Steel

Diam. Tap Inches	Cut Thread Each	Ground Thread Each	Threads per Inch N.C.	Threads per Inch N.F.	Threads per Inch N.S.	No. Flutes	Lgth. Over-all In.
1/4	**$.85**	**$1.03**	20	28	....	4	2 1/2
5/16	**.95**	**1.15**	18	24	....	4	2 23/32
3/8	**1.10**	**1.34**	16	24	....	4	2 15/16
7/16	**1.46**	**1.72**	14	20	....	4	3 5/32
1/2	**1.75**	**2.06**	13	20	....	4	3 3/8
9/16	**2.09**	**2.46**	12	18	....	4	3 19/32
5/8	....	**3.14**	11	18	....	4	3 13/16
11/16	....	**3.71**	..	..	11,16	4	4 1/32
3/4	....	**4.43**	10	16	....	4	4 1/4
7/8	....	**6.14**	9	14	*18	4	4 11/16
1	....	**8.22**	8	14	14	4	5 1/8
1 1/8	....	**10.65**	7	12	....	4	5 7/16
1 1/4	....	**13.65**	7	12	....	†4	5 3/4
1 3/8	....	**17.08**	6	12	....	†4	6 1/16
1 1/2	....	**21.09**	6	12	....	†4	6 3/8

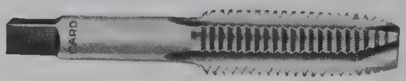
Carbon Steel

Diam. Tap Inches	Each	Threads per Inch N.C.	Threads per Inch N.F.	Threads per Inch N.S.	No. Flutes	Lgth. Over-all In.
1/16	$.60	..	..	64	3	1 5/8
3/32	.48	..	..	48	3	1 3/4
1/8	.38	..	..	40	3	1 15/16
5/32	.38	..	..	32, 36	4	2 1/16
3/16	.44	..	..	24, 32	4	2 3/8
7/32	.49	..	..	24, 32	4	2 3/8
1/4	.63	20	28	24, 32	4	2 1/2
5/16	.70	18	24	32	4	2 23/32
3/8	.77	16	24	....	4	2 15/16
7/16	.90	14	20	....	4	3 5/32
1/2	1.05	13	20	....	4	3 3/8
9/16	1.20	12	18	....	4	3 19/32
5/8	1.35	11	18	....	4	3 13/16
11/16	1.68	..	..	11, 16	4	4 1/32
3/4	1.92	10	16	....	4	4 1/4
7/8	2.56	9	14	....	4	4 11/16
1	3.20	8	14	14	4	5 1/8
1 1/8	4.50	7	12	....	4	5 7/16
1 1/4	5.20	7	12	....	†4	5 3/4
1 3/8	6.00	6	12	....	†4	6 1/16
1 1/2	7.00	6	12	....	†4	6 3/8
1 5/8	8.40	..	..	5 1/2	6	6 11/16
1 3/4	10.00	5	..	....	6	7
1 7/8	11.60	..	..	5	6	7 5/16
2	13.40	4 1/2	..	....	6	7 5/8

*Furnished in GH 4 Limit plug style only.
†N.F. thread have 6 flutes in these sizes.

Card Spiral Pointed Hand Taps

High Speed **Steel** — **No. 2034 Cut Thread**
No. 3034 Ground Thread
Carbon Steel — **No. 1034**



Furnished with American National form of thread in plug style.

High speed steel taps are standard in cut thread and ground thread. Ground thread taps are furnished unless otherwise specified. When the limit is not specified, GH 3 Limits will be furnished. Exception: ground thread taps 1/4 and 5/16-inch diameter are also standard in bottoming style, GH 3 Limits only.

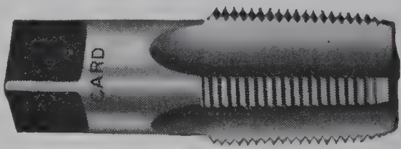
Carbon steel taps are standard in cut thread.

Left-hand taps are special.

Sizes and dimensions not listed are special.

Diam. In.	*High Speed* Cut Thrd. Each	*High Speed* Grd. Thrd. Each	Carbon Each	Threads per Inch N.C.	Threads per Inch N.F.	Threads per Inch N.S.	No. Flutes	Lgth. Over-all In.
1/8	....	....	$.49	..	..	40	2	1 15/16
3/16	....	....	.55	..	..	24, 32	2	2 3/8
1/4	**$.95**	**$1.15**	.77	20	28	..	2	2 1/2
5/16	**1.05**	**1.28**	.84	18	24	..	2	2 23/32
3/8	**1.25**	**1.52**	.98	16	24	..	3	2 15/16
7/16	**1.63**	**1.92**	1.12	14	20	..	3	3 5/32
1/2	**1.92**	**2.26**	1.27	13	20	..	3	3 3/8

Card Pipe Taps



High speed steel (Nos. 2140 and 2144) furnished with American Standard Pipe form of thread at regular prices.

High speed steel (No. 2141) furnished with American Standard Pipe thread in plug style only at regular prices.

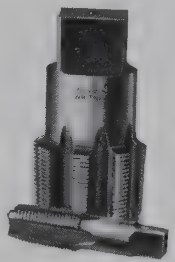
Carbon steel (Nos. 1140 and 1141) furnished with American Standard Pipe form of thread at regular prices.

Unless otherwise specified, orders for 1/8-inch pipe taps will be filled with taps having the large shank.

High speed cut thread taps will be furnished unless ground threads are specified. Available in sizes 1/8 to 2 inches inclusive.

Prices and complete information on request.

No. 313 Hanson-Whitney Taper Pipe Taps



High Speed **Steel**
Ground Thread

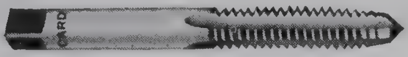
Size 1/8 inch will be furnished with taps having the large shank unless otherwise specified. ANPT and NPTF (Dryseal) priced same as regular NPT. NPT taps will be furnished unless otherwise specified.

Left-hand taps are special.

Size In.	Regular Each	Regular No. of Flutes	Interrupted Each	Interrupted No. of Flutes	Thrds. per In.	Lgth. Thrd. In.	Lgth. O/A In.
1/16	**$2.36**	4	....	5	27	11/16	2 1/8
1/8	**2.36**	4	**$2.96**	5	27	3/4	2 1/8
1/4	**2.66**	4	**3.25**	5	18	1 1/16	2 7/16
3/8	**3.40**	4	**4.14**	5	18	1 1/16	2 9/16
1/2	**6.51**	4	**7.77**	5	14	1 3/8	3 1/8
3/4	**9.02**	5	**10.80**	5	14	1 3/8	3 1/4
1	**13.61**	5	**16.42**	5	11 1/2	1 3/4	3 3/4
1 1/4	**19.38**	5	**23.31**	5	11 1/2	1 3/4	4
1 1/2	**26.19**	7	**31.45**	7	11 1/2	1 3/4	4 1/4
2	**35.52**	7	**42.62**	7	11 1/2	1 3/4	4 1/2

Card Standard Machine Screw Taps

High Speed **Steel** — **No. 2120 Cut Thread**
No. 3120 Ground Thread
Carbon Steel — **No. 1120**



Furnished with American National form of thread in taper, plug or bottoming style.

High speed steel taps are standard in cut thread and ground thread. Ground thread taps are furnished unless otherwise specified.

Carbon steel taps are standard in cut thread.

Left-hand types are special.

Sizes and dimensions not listed are special.

Screw Gage No.	*High Speed* Cut Thrd. Each	*High Speed* Grd. Thrd. Each	Carbon Each	Basic Major Diam. In.	Threads Per Inch N.C.	N.F.	N.S.	No. Flutes Std.	†Opt.	Lgth. Over-all In.
0	....	***$2.16***	$.60	.060	..	80	..	2	..	1⅝
1	....	***1.98***	.60	.073	64	72	*56	2	..	1 11/16
2	....	***1.84***	.54	.086	56	64	..	3	2	1¾
3	***$1.14***	***1.43***	.44	.099	48	56	..	3	2	1 13/16
4	***.94***	***1.18***	.44	.112	40	48	*32,36	3	2	1⅞
5	***.94***	***1.18***	.38	.125	40	44	..	3	2	1 15/16
6	***.79***	***.99***	.38	.138	32	40	*36	3	2	2
8	***.79***	***.99***	.38	.164	32	36	*40	4	2, 3	2⅛
10	***.81***	***1.01***	.44	.190	24	32	*30	4	2, 3	2⅜
12	***.84***	***1.02***	.49	.216	24	28	*32	4	..	2⅜
14	***.96***	***1.08***	.63	.242	..	..	20,24	4	..	2½

*For carbon steel only.

†***High Speed*** steel only; standard in plug or bottoming style only.

No. 301 Hanson-Whitney Standard Hand Taps

High Speed **Steel**

Ground Thread

Regularly furnished right-hand for tapping. Unified and American National Coarse and Fine threads in taper, plug or bottoming style. Metric is standard in plug style only.

Left-hand taps are special.

Diam. Tap In.	Each	Threads Per Inch N.C.	N.F.	N.S.	No. of Flutes N.C. N.S.	N.F.	Lgth. Thrd. In.	Lgth. Over-all In.
¼	***$1.03***	20	28	..	4	4	1	2½
5/16	***1.15***	18	24	..	4	4	1⅛	2 23/32
⅜	***1.34***	16	24	..	4	4	1¼	2 15/16
7/16	***1.72***	14	20	..	4	4	1 7/16	3 5/32
½	***2.06***	13	20	..	4	4	1 21/32	3⅜
9/16	***2.46***	12	18	..	4	4	1 21/32	3 19/32
⅝	***3.14***	11	18	..	4	4	1 13/16	3 13/16
11/16	***3.71***	..	..	11, 16	4	4	1 13/16	4 1/32
¾	***4.43***	10	16	..	4	4	2	4¼
⅞	***6.14***	9	14	..	4	4	2 7/32	4 11/16
1	***8.22***	8	12	14	4	4	2½	5⅛
1⅛	***10.65***	7	12	..	4	4	2 9/16	5 7/16
1¼	***13.65***	7	12	..	4	6	2 9/16	5¾
1⅜	***17.08***	6	12	..	4	6	3	6 1/16
1½	***21.09***	6	12	..	4	6	3	6⅜

Metric

Diam. Tap Mm.	Each	Pitch Mm.	Diam. Shank In.	Size Square In.	Lgth. Thrd. In.	Lgth. O/A In.
10	***$1.72***	1.00	.306	.229	1¼	2 15/16
14	***2.46***	1.25	.429	.322	1 21/32	3 19/32
18	***4.43***	1.50	.542	.406	1 13/16	4 1/32

No. 303 Hanson-Whitney Spiral Pointed Hand Taps

High Speed **Steel**
Ground Thread

Furnished regularly right-hand for tapping Unified and American National coarse and fine threads in plug style and also ¼ and 5/16-inch size in bottoming style H3 limit only. Left-hand taps are special.

Diam. Tap In.	Each	Threads Per Inch N.C.	N.F.	No. of Flutes	Lgth. Thrd. In.	Lgth. Over-all In.
¼	***$1.15***	20	28	2	1	2½
5/16	***1.28***	18	24	2	1⅛	2 23/32
⅜	***1.52***	16	24	3	1¼	2 15/16
7/16	***1.92***	14	20	3	1 7/16	3 5/32
½	***2.26***	13	20	3	1 21/32	3⅜

No. 304 Hanson-Whitney Standard Machine Screw Taps

High Speed **Steel**

Ground Thread

Regularly furnished right-hand for tapping Unified and American National coarse and fine threads in taper, plug and bottoming style with standard number of flutes. Plug and bottoming style only with optional number of flutes.

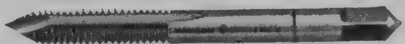
Left-hand taps are special.

Screw Gage No.	Each	Basic Major Diam. In.	Threads Per Inch N.C.	N.F.	N.S.	No. of Flutes Std.	Opt.	Lgth. of Full Thrd. In.	Lgth. Over-all In.
0	***$2.16***	.060	..	80	..	2	...	5/16	1⅝
1	***1.98***	.073	64	72	..	2	...	⅜	1 11/16
2	***1.84***	.086	56	64	..	3	2	7/16	1¾
3	***1.43***	.099	48	56	..	3	2	½	1 13/16
4	***1.18***	.112	40	48	36	3	2	9/16	1⅞
5	***1.18***	.125	40	44	..	3	2	⅝	1 15/16
6	***.99***	.138	32	40	..	3	2	11/16	2
8	***.99***	.164	32	36	..	4	2, 3	¾	2⅛
10	***1.01***	.190	24	32	..	4	2, 3	⅞	2⅜
12	***1.02***	.216	24	28	..	4	...	15/16	2⅜
14	***1.08***	.242	..	..	20, 24	4	...	1	2½

No. 305 Hanson-Whitney Spiral Pointed Machine Screw Taps

High Speed **Steel**

Ground Thread



Regularly furnished right-hand for tapping Unified and American National coarse and fine threads in plug and bottoming style only.

Left-hand taps are special.

Screw Gage No.	Each	Basic Major Diam. In.	Threads Per Inch N.C.	N.F.	N.S.	No. of Flutes	Lgth. Thrd. In.	Lgth. Over-all In.
0	***$2.40***	.060	..	80	..	2	5/16	1⅝
1	***2.20***	.073	64	72	..	2	⅜	1 11/16
2	***2.05***	.086	56	64	..	2	7/16	1¾
3	***1.60***	.099	48	56	..	2	½	1 13/16
4	***1.35***	.112	40	48	36	2	9/16	1⅞
5	***1.35***	.125	40	44	..	2	⅝	1 15/16
6	***1.13***	.138	32	40	..	2	11/16	2
8	***1.13***	.164	32	36	..	2	¾	2⅛
10	***1.14***	.190	24	32	..	2	⅞	2⅜
12	***1.15***	.216	24	28	..	2	15/16	2⅜
14	***1.21***	.242	..	..	20, 24	2	1	2½

No. 306 Hanson-Whitney Nut Taps

4-Fluted
***High Speed* Steel**

Ground Thread

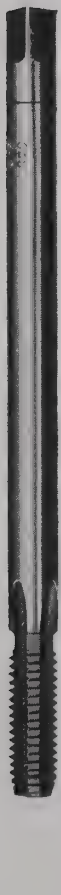
Regularly furnished right-hand for tapping Unified and American National coarse and fine threads.
Left-hand taps are special.

Diam. Tap In.	H3 Limit Each	H4 Limit Each	Threads Per Inch N.C.	Threads Per Inch N.F.	Threads Per Inch N.S.	Length of Thread N.C.	Length of Thread N.F. N.S.	Lgth. Over-all In.
¼	***$3.75***	.....	20	28	..	1⅝	1¼	5
5/16	***4.25***	.....	18	24	..	1 13/16	1⅜	5½
⅜	***5.00***	.....	16	24	..	2	1½	6
7/16	***6.00***	.....	14	20	..	2⅜	1¾	6½
½	***6.75***	.....	13	20	..	2½	1⅞	7
⅝	***8.30***	.....	11	18	..	3	2¼	8
¾	***11.58***	.....	10	16	..	3¼	2½	9
⅞	.....	***$16.19***	9	14	..	3⅝	2¾	10
1	.....	***21.62***	8	12	14	4	3	11

No. 311 Hanson-Whitney Pulley Taps

4-Fluted
***High Speed* Steel**

Ground Thread



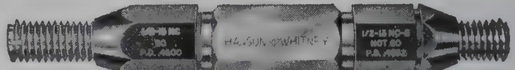
Regularly furnished right-hand for tapping Unified and American National coarse threads.

Standard in H3 limit.

Left-hand taps are special.

Diam. Tap In.	Length Overall, Inches 6 Each	Length Overall, Inches 8 Each	Length Overall, Inches 10 Each	Length Overall, Inches 12 Each	Threads per Inch N.C.	Lgth. of Thrd. In.
¼	***$2.97***	***$3.93***	....	....	20	1
5/16	***2.97***	***4.02***	....	....	18	1⅛
⅜	***3.50***	***4.55***	***$5.60***	....	16	1¼
7/16	***3.57***	***4.67***	***5.70***	....	14	1 7/16
½	***3.66***	***5.05***	***6.11***	***$7.17***	13	1 21/32
⅝	***4.72***	***6.68***	***8.15***	***9.45***	11	1 13/16
¾	....	....	***9.94***	***11.57***	10	2

No. 407 Hanson-Whitney Reversible Thread Plug Gages

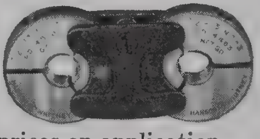


Prices shown are for Class X tolerance gages; Y or W tolerances are available, prices on application.

Left hand gages, sizes and pitches not listed are available; prices on application.

Size No.	Dec. Equiv. In.	Thrds. per In. N.C. U.N.C.	Thrds. per In. N.F. U.N.F.	Go Member Class 2, 3, 1B, 2B, 3B Each	Not Go Member Class 2, 3, 2B, 3B Each	Handle Only Size No.	Handle Only Each
0	.060	..	80	**$13.90**	**$19.40**	1W	**$2.40**
1	.073	64	72	**13.90**	**19.40**	1W	**2.40**
2	.086	56	64	**13.90**	**19.40**	2W	**2.40**
3	.099	48	56	**12.80**	**17.90**	2W	**2.40**
4	.112	40	48	**12.80**	**12.80**	2W	**2.40**
5	.125	40	44	**11.60**	**11.60**	2W	**2.40**
6	.138	32	40	**11.60**	**11.60**	2W	**2.40**
8	.164	32	36	**11.60**	**11.60**	2W	**2.40**
10	.190	24	32	**11.60**	**11.60**	3W	**2.40**
12	.216	24	28	**11.60**	**11.60**	3W	**2.40**
¼	....	20	28	**9.80**	**9.80**	3W	**2.40**
5/16	....	18	24	**9.80**	**9.80**	4W	**2.40**
⅜	....	16	24	**10.50**	**10.50**	4W	**2.40**
7/16	....	14	20	**10.50**	**10.50**	5W	**2.90**
½	....	13	20	**11.30**	**11.30**	5W	**2.90**

No. 404 Hanson-Whitney Adjustable A.G.D. Thread Ring Gages



Prices shown are for Class X tolerance gages; Y or W tolerances are available, prices on application.

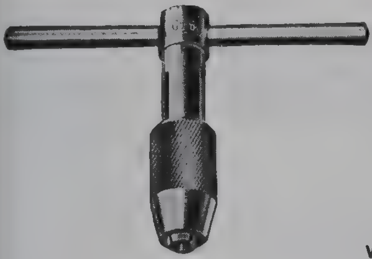
Left hand gages, sizes and pitches not listed are available, prices on application.

Gages with carbide inserts are also available; prices on application.

Size No.	Dec. Equiv. In.	Thrds. per In. N.C. U.N.C.	Thrds. per In. N.F. U.N.F.	Go Ring Class 2, 3, 1A, 2A, 3A Each	Not Go Ring Class 2 3, 2A, 3A Each	Holder Only Size No.	Holder Only Each
0	.060	..	80	**$21.31**	**$32.44**	00	**$4.46**
1	.073	64	72	**21.31**	**32.44**	00	**4.46**
2	.086	56	64	**21.31**	**32.44**	00	**4.46**
3	.099	48	56	**19.72**	**32.44**	00	**4.46**
4	.112	40	48	**19.72**	**26.35**	00	**4.46**
5	.125	40	44	**18.28**	**24.33**	00	**4.46**
6	.138	32	40	**18.28**	**24.33**	00	**4.46**
8	.164	32	36	**18.28**	**24.33**	0	**4.46**
10	.190	24	32	**18.28**	**24.33**	0	**4.46**
12	.216	24	28	**18.28**	**24.33**	0	**4.46**
¼″	....	20	28	**15.12**	**20.30**	1	**4.46**
5/16″	....	18	24	**15.12**	**20.30**	1	**4.46**
⅜″	....	16	24	**16.12**	**21.60**	2	**5.18**
7/16″	....	14	20	**16.12**	**21.60**	2	**5.18**
½″	....	13	20	**17.28**	**23.04**	2	**5.18**
9/16″	....	12	18	**18.86**	**25.34**	3	**7.05**
⅝″	....	11	18	**18.86**	**25.34**	3	**7.05**
¾″	....	10	16	**20.88**	**27.93**	3	**7.05**
⅞″	....	9	14	**23.04**	**30.38**	4	**8.64**
1″	....	8	*12, 14	**25.34**	**33.84**	4	**8.64**
1⅛″	....	7	12	**28.80**	**38.01**	4	**8.64**
1¼″	....	7	12	**32.11**	**42.33**	5	**10.36**
1⅜″	....	6	12	**35.56**	**47.37**	5	**10.36**
1½″	....	6	12	**38.88**	**52.41**	5	**10.36**

*12 threads standard in Unified system.

GTD Tap Wrenches



Made from steel carefully selected for its toughness. Entirely free from delicate springs, pins, etc. Chuck jaws are hardened and tempered.

Slip handle type allows complete rotation of wrench in close quarters.

	With Slip T Handle		With Rigid T Handle	
No.	328	332	329	333
Each	$1.45	2.11	1.08	1.81
Tap Size Cap.: Hand, in.	1/16–9/32	7/32–1/2	1/16–1/4	1/4–1/2
Machine Screw	0–14	12–14	0–14	14
Length, in.	2 3/4	3 5/8	2 1/2	3 5/8
Weight, oz.	3	8	3	8

GTD Adjustable Tap and Reamer Wrenches

Jaws are made of tool steel, carefully hardened and tempered. They will not break or get out of line.

Wrenches Nos. 00 to 7 are solid steel drop forgings.

Larger sizes. Nos. 7½ and 8, have malleable iron bodies and steel tubing handles.

		Cap. (Tap Sizes), In.					
No.	Each	Hand	Machine Screw	Pipe	Hand Reamers	Lgth. In.	Wt. Lb.
00	$2.47	1/16–1/4	0–14	......	1/8–17/64	5	1/8
0	3.02	1/16–1/4	0–14	......	1/8–21/64	7	1/4
4	4.12	1/16–3/8	0–14	......	1/8–25/64	9	1/2
5	4.95	5/32–1/2	7–14	1/8	11/64–7/16	11	3/4
6	5.50	5/32–3/4	7–14	1/8–1/4	11/64–41/64	15	1 1/2
7	6.87	1/4–1 1/8	....	1/8–3/4	9/32–29/32	19	3
7½	11.00	1/2–1 3/8	....	1/8–1	3/8–1 5/32	31	4 1/2
8	15.67	3/4–1 5/8	....	3/8–1 1/4	37/64–1 11/32	40	8

No. 192 Cleveland Ezy-Out Screw Extractors

For Removing Broken Cap and Set Screws

Useful in digging out especially stubborn and deeply imbedded screws.

No.	Each	Diam. Large End Inches	Diam. Small End Inches	Size Drill to Use Inches	Length Overall Inches	For Screws and Bolts, Sizes Inches	For Pipe Size In.
1	$.30	5/32	.054	5/64	2	3/16–1/4	..
2	.33	3/16	.080	7/64	2 3/8	1/4–5/16	..
3	.36	1/4	1/8	5/32	2 11/16	5/16–7/16	..
4	.42	21/64	3/16	1/4	2 7/8	7/16–9/16	..
5	.46	7/16	1/4	17/64	3 3/8	9/16–3/4	1/8, 1/4
6	.70	19/32	3/8	13/32	3 3/4	3/4–1	3/8
7	1.26	3/4	1/2	17/32	4 1/8	1 –1 3/8	1/2
8	1.74	1	3/4	13/16	4 3/8	1 3/8–1 3/4	3/4
9	2.60	1 9/32	1	1 1/16	4 5/8	1 3/4–2 1/8	1
10	4.12	1 9/16	1 1/4	1 5/16	5	2 1/8–2 1/2	1 1/4
11	5.54	1 7/8	1 1/2	1 9/16	5 5/8	2 1/2–3	1 1/2
12	6.87	2 5/16	1 7/8	1 15/16	6 1/4	3 –3 1/2	2

No. 15A Sets. For general use around the garage. Contains Nos. 1 to 6 inclusive..................per set **$2.42**

No. 15 Sets. For toolroom and lighter repair work. Contains Nos. 1 to 5 inclusive..................per set **$1.70**

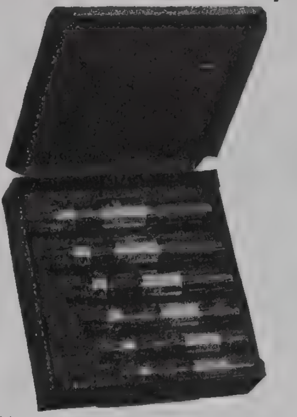
No. 16 Sets. For railroad, steel and structural workers. Will handle any broken bolt from 9/16 to 2 1/8 inches. Known as the heavy shop set. Contains Nos. 6, 7, 8, and 9 ....per set **$6.30**

No. 17 Sets. For general machine shop use. Will handle any bolt, cap or set-screw from 3/8 to 1-inch. Contains Nos. 4, 5, and 6..................................per set **$1.47**

No. 20 Sets. For garage or general use. Capable of handling any size bolt, cap, or set-screw from small electrical parts to 1-inch studs. Contains Nos. 1 to 6 inclusive with the proper ***high speed*** straight shank drill to use with each extractor..................................per set ***$5.92***

Each set packed in metal case with slide cover.

Walton Tap Extractor Sets



For removing taps broken at or below surface of work without injury to thread.

The alloy steel fingers, which fit the flutes of the tap, grip and back out the broken piece quickly, easily and without damage to threads. No annealing, drilling or special tools are required.

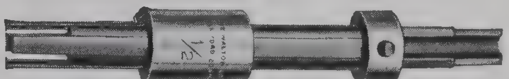
Each set is packed in a metal case.

Available with 2, 3, or 4 flutes. Four-flute style will be supplied unless otherwise specified.

No.	Set	Sizes, One Each, Per Set	Wt. Lb.
1	$12.42	3/16, 1/4, 5/16, 3/8, 7/16, 1/2-inch	1 3/4
2	12.77	1/4, 5/16, 3/8, 7/16, 1/2, and 5/8-inch	2
3	13.45	5/16, 3/8, 7/16, 1/2, 9/16, and 5/8-inch	2 1/4
11	27.40	*1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, and 1-inch	6 1/2
13	27.73	*4, *5, *6, 8, 10, 12 Machine Screws; and 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4-inch	4 3/4
15	34.29	*4, *5, *6, 8, 10, 12 Machine Screws; and 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1-inch	6 1/2

*3 flute style supplied.

Walton Tap Extractors



Used in metalworking plants for removing taps broken at or below the surface of work without annealing, drilling or damage to threads or work.

Fingers are of specially tempered crucible steel.

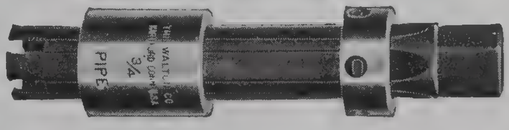
When ordering, specify whether for 2, 3, 4 or 6-fluted taps; 4-fluted style supplied unless otherwise specified.

Orders for ten or more sizes will be shipped in a metal box upon request.

Tap Size In.	Complete, No. of Flutes: 2 Each	3 Each	4 Each	Ex. Fingers Each
4	$2.07	$2.07	....	$.05
5(1/8)	2.07	2.07	....	.05
6	2.07	2.07	$2.07	.05
8	2.07	2.07	2.07	.05
10(3/16)	2.07	2.07	2.07	.08
12	2.14	2.14	2.14	.11
1/4	2.14	2.14	2.14	.13
9/32	....	....	2.14	.13
5/16	2.21	2.21	2.21	.13
11/32	....	....	2.21	.13
3/8	2.21	2.21	2.21	.16
13/32	....	....	2.34	.16

Tap Size In.	Complete, No. of Flutes: 2 Each	3 Each	4 Each	6 Each	Ex. Fingers Each
7/16	$2.34	$2.34	$2.34	....	$.16
1/2	2.55	2.55	2.55	....	.20
9/16	....	2.76	2.76	....	.20
5/8	....	3.03	3.03	....	.27
11/16	....	....	3.24	....	.27
3/4	....	3.38	3.38	....	.27
7/8	....	3.79	3.79	....	.34
1	....	4.28	4.28	....	.34
1 1/8	....	....	4.83	$5.63	.34
1 1/4	....	....	5.52	6.32	.41
1 3/8	....	....	6.21	7.06	.41
1 1/2	....	....	6.90	7.80	.48

Walton Pipe Tap Extractors



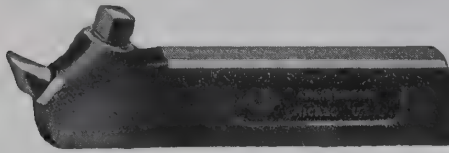
Designed to fit pipe taps. Sizes and styles not listed can be furnished on special order.

When ordering, be sure to specify pipe tap and whether 4 or 5-flute style is required.

Pipe Tap Size, in.	1/8	1/4	3/8	1/2	3/4	1
Extractors,						
4-Flute, each	$2.35	$2.76	$3.38	$3.79	.....	.....
5-Flute, each	2.55	2.97	3.73	4.28	$3.24	$6.21
Extra Fingers,						
4-Flute, each	.16	.20	.27	.34	...	...
5-Flute, each	.16	.20	.27	.34	.34	.41

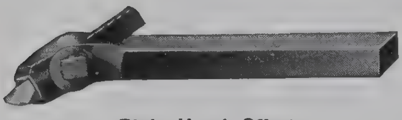
Armstrong Tool Holders

Holder is drop forged from a special steel which combines stiffness and strength. Accurately machined, heat treated and hardened.



Straight Shank

Left Hand, Offset



Right Hand, Offset

Set-screw is made of treated alloy steel with hardened point.

Cutter is made from stock size and shape of steel.

One holder with a few cutters will do any job on the lathe or shaper; roughing, facing, finishing, corner and fillet work.

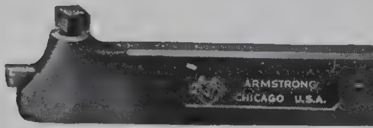
Saves all forging and most of the grinding.

Price includes wrench and one ***high speed*** cutter bit.

No. Straight Shank	No. Left Hand	No. Right Hand	Complete Tool Each	Extra ***High Speed*** Cutter Bits Each	Size Holder Inches	Size Cutter In. Sq.
000-S	000-L	000-R	***$5.00***	***$.18***	5/16x 1/2x 4	3/16
00-S	00-L	00-R	***5.00***	***.18***	5/16x 3/4x 4 1/2	3/16
0-S	0-L	0-R	***5.29***	***.24***	3/8x 7/8x 5	1/4
1-S	1-L	1-R	***6.06***	***.33***	1/2x1 1/8x 6	5/16
2-S	2-L	2-R	***7.43***	***.46***	5/8x1 3/8x 7	3/8
3-S	3-L	3-R	***10.06***	***.61***	3/4x1 5/8x 8	7/16
4-S	4-L	4-R	***12.79***	***.87***	7/8x1 3/4x 9	1/2
5-S	5-L	5-R	***18.15***	***1.35***	1 x2 x11	5/8
6-S	6-L	6-R	***25.14***	***2.06***	1 1/4x2 1/4x13	3/4
7-S	7-L	7-R	***43.71***	***3.66***	1 1/2x2 1/2x16	7/8
750-S	750-L	750-R	***64.10***	***6.00***	1 5/8x2 3/4x18	1
800-S	800-L	800-R	***83.06***	***8.19***	1 3/4x3 x20	1 1/8

Armstrong Carbide Tool Holders

For Holding Armide Cutter Bits



Primarily used with carbide cutters but also widely used as a planer and shaper tool. High speed steel cutter bits can also be used.

Drop forged of special steel and heat treated.

The cutter is held parallel to the shank of the holder which permits grinding the cutter so as to give maximum support to the cutting edge.

Furnished with hole broached for either square or heavy duty cutters.

Tool is individually boxed and furnished with wrench, but without cutter.

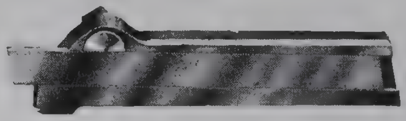
For Square Cutters

Straight Shank	Right Hand	Left Hand	Each	Size of Holder Inches	Size of Cutter Inches	Weight Pounds
T-0-S	T-0-R	T-0-L	$5.93	3/8x15/16x 6	1/4	1 1/4
T-1-S	T-1-R	T-1-L	6.69	1/2x1 1/4x 7	5/16	2
T-2-S	T-2-R	T-2-L	8.36	5/8x1 1/2x 8	3/8	3 1/4
T-3-S	T-3-R	T-3-L	11.19	3/4x1 3/4x 9	7/16	5
T-4-S	T-4-R	T-4-L	14.12	7/8x1 7/8x10	1/2	7
T-5-S	T-5-R	T-5-L	20.11	1 x2 1/8x12	5/8	10 1/2
T-6-S	T-6-R	T-6-L	39.45	1 1/4x2 1/4x13	3/4	12
T-7-S	T-7-R	T-7-L	68.72	1 1/2x2 1/2x16	7/8	19
T-750-S	T-750-R	T-750-L	116.97	1 5/8x2 3/4x18	1	26
T-800-S	T-800-R	T-800-L	146.18	1 3/4x3 x20	1 1/8	32

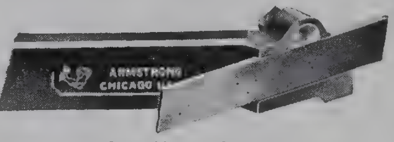
For Heavy Duty Cutters

Straight Shank	Right Hand	Left Hand	Each	Size of Holder Inches	Size of Cutter Inches	Weight Pounds
FT-0-S	FT-0-R	FT-0-L	$7.40	3/8x15/16x 6	1/4x3/8	1 1/4
FT-1-S	FT-1-R	FT-1-L	8.49	1/2x1 1/4x 7	5/16x7/16	2
FT-2-S	FT-2-R	FT-2-L	10.50	5/8x1 1/2x 8	3/8x1/2	3 1/4
FT-3-S	FT-3-R	FT-3-L	13.97	3/4x1 3/4x 9	7/16x9/16	5
FT-4-S	FT-4-R	FT-4-L	17.84	7/8x1 7/8x10	1/2x3/4	7
FT-5-S	FT-5-R	FT-5-L	25.06	1 x2 1/8x12	5/8x7/8	10 1/2

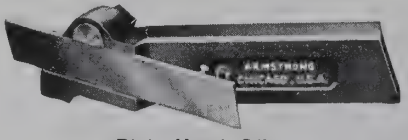
Armstrong Cutting Off Tools



Straight Shank



Left Hand, Offset



Right Hand, Offset

Made of forged steel.

As blade is adjustable to any desired clearance the greatest possible support is obtainable under all conditions.

The blade is beveled on both sides and is held at an angle, giving the side clearance and top rake needed to obtain a clean smooth cut.

Price includes wrench and one ***high speed*** cut-off blade.

No. Straight Shank	No. Left Hand	No. Right Hand	Complete Tool Each	Extra ***High Speed*** Cut-Off Blade Each	Size Shank Inches	Size blade Inches	Approx. Weight Pounds
19	29-L	29-R	***$5.29***	***$1.06***	5/16x 3/4x 4 1/2	3/32x 1/2	5/8
20	30-L	30-R	***5.59***	***1.28***	3/8x 7/8x 5	3/32x 5/8	3/4
21	31-L	31-R	***6.66***	***1.40***	1/2x1 1/8x 6	1/8x 3/4	1 1/2
22	32-L	32-R	***8.36***	***1.83***	5/8x1 3/8x 7	1/8x 7/8	2 1/4
23	33-L	33-R	***11.19***	***1.94***	3/4x1 5/8x 8	3/16x1	3 1/2
24	34-L	34-R	***13.95***	***2.06***	7/8x1 3/4x 9	3/16x1 1/8	4 3/4
25	35-L	35-R	***18.15***	***2.54***	1 x2 x10	1/4x1 1/4	6 3/4
26	36-L	36-R	***22.65***	***2.82***	1 1/4x2 1/4x11	1/4x1 3/8	9

Armstrong Boring Bars

End Cap Pattern

For Use in Armstrong Boring Tools

For boring, facing and internal threading. The end caps lock the cutters rigidly under a tool steel automatic set-screw and are interchangeable without removing bar from holder.

Each bar is boxed separately and price includes bar with 90°, 45°, and 30° end caps, 3 ***high speed*** cutters, double head wrench and bushing. Give size of shank or number of tool in which bar is to be used.

No.	Complete Each	Extra Cutter Bits (***High Speed***), Each 90°	Extra Cutter Bits (***High Speed***), Each 45° & 30°	Diam. Bar In.	Lgth. Bar In.	Size of Cutter Sq. In.	Bushing to Fit Shank No.	Wt. Lb. Each
0B	***$5.59***	***$.16***	***$.16***	1/2	8	3/16	8, 9 or 10	3/4
08	***5.59***	***.16***	***.16***	9/16	9	3/16	9, 10 or 11	1
09	***6.99***	***.22***	***.22***	3/4	11	1/4	10, 11 or 12	2 1/4
010	***10.06***	***.32***	***.32***	15/16	13	5/16	11, 12 or 13	4 1/2
011	***13.95***	***.45***	***.45***	1 1/8	16	3/8	12 or 13	7
012	***19.51***	***.60***	***.60***	1 5/16	18	7/16	13	11
*013	***25.14***	***.86***	***.86***	1 1/2	23	1/2	....	15
*014	***36.30***	***1.34***	***1.34***	1 13/16	28	5/8	....	23

*Without bushing.

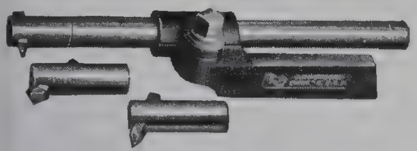
EXTRA KNURLS

We Can Furnish Knurls of Many Patterns. Let Us Know Your Wants.

Prices Upon Application

ALLEGHENY LUDLUM PRODUCTS STOCKED IN SOUTH BEND ONLY

Armstrong Boring Tools



Price includes holder and bar, 90°, 45° and 30° end caps, 3 ***high speed*** steel cutters and double head wrench.
Packed 1 in a box.

No.	Complete Tool Each	Extra ***High Speed*** Cutters 90°, 45°, 30 Each	Size Shank Inches	Diam. Bar Inches	Size Cutter Square Inch	Wt. Lb.
00B	$9.12	***$.16***	5/16x 3/4	1/2	3/16	1 1/2
8	9.12	***.16***	3/8x 7/8	9/16	3/16	1 3/4
9	10.82	***.22***	1/2x1 1/8	3/4	1/4	3 3/4
10	14.25	***.32***	5/8x1 3/8	15/16	5/16	6 1/2
11	20.18	***.45***	3/4x1 5/8	1 1/8	3/8	11
12	29.77	***.60***	7/8x1 3/4	1 5/16	7/16	17
13	43.71	***.86***	1 x2	1 1/2	1/2	25

Armstrong Knurling Tools

Knurls and pins made of tool steel suitably tempered. All other parts are drop-forged or bar steel, hardened.

ARMSTRONG
CHICAGO U.S.A.

Self centering and knuckle or joint has ample bearing to resist the severe strains of both end and side thrust. Knurls can be furnished coarse, medium and fine, in either straight line or diamond pattern. Medium diamond knurls will be sent with tool unless otherwise ordered.

No.	Complete	Extra Knurls per Pair	Size Holder Inches	Dimensions, Knurls — Inches — Diam.	Face	Hole	Knurling Cap. Diam. In.	Wt. Lb. Each
00-K	$10.49	$1.86	5/16x 3/4x5	5/8	3/16	7/32	1/8 up	5/8
0-K	11.19	1.86	3/8x 7/8x5 1/2	5/8	3/16	7/32	1/8 up	7/8
1-K	12.55	2.16	1/2x1 1/8x6 1/2	3/4	1/4	1/4	3/16 up	1 1/2
2-K	14.85	2.16	5/8x1 3/8x7 1/2	3/4	1/4	1/4	3/16 up	2
4-K	27.18	3.89	7/8x1 3/4x9	1	1/4	5/16	1/4 up	4

High Speed Steel Treated Bits

For Tool Holders

Rex AA, Rex AAA, Rex M-2 and Rex M2-5

REX
High Speed Steel
TOOL BITS
REX AA

These bits fit securely and can be made rigid in any of the standard makes of tool holders. All bits should be ground thoroughly before using.

Lengths shown in table (with 10° bevel on each end) will be furnished unless other wise specified. Special sizes, shapes and lengths can be furnished.

Packed in boxes of about 5 pounds of a size.

Size, In. Sq.	Lgth.	*No. of Bits per Lb.	Size, In. Sq.	Lgth.	*No. of Bits per Lb.
3/16	2 1/2	36	1/2	4	3
1/4	2 1/2	20	9/16	4	3
5/16	2 1/2	13	5/8	4 1/2	2
3/8	3	8	3/4	5	†1
7/16	3 1/2	5	...	...	..

*Tungsten type only; Rex M-2 and Rex M2-5 bits have specific gravity of approximately 7 per cent less.

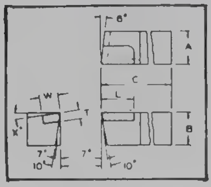
†Wt. of one tungsten ***high speed*** bit, approx. 7/8 lb.

Allegheny Ludlum Standard Lathe Tools

Carmet

Style AR, Right-Hand **Style AL, Left-Hand**

Style AR



No. Right-Hand	No. Left-Hand	CA Grades Stocked 610	608	3	4	51	Shank Dimen. A In.	B In.	C In.	X Deg.
AR- 4	AL- 4	x	x	.	x	.	1/4	1/4	1 1/2	6
AR- 5	AL- 5	x	x	.	x	.	5/16	5/16	2 1/4	6
AR- 6	AL- 6	x	x	x	x	.	3/8	3/8	2 1/2	6
AR- 7	AL- 7	x	x	.	x	.	7/16	7/16	3	6
AR- 8	AL- 8	x	x	x	x	.	1/2	1/2	3 1/2	6
AR-10	AL-10	x	x	x	x	.	5/8	5/8	4	6
AR-12	AL-12	x	x	x	x	.	3/4	3/4	4 1/2	6
AR-16	AL-16	x	.	x	x	x	1	1	7	4
AR-20	AL-20	x	.	x	x	x	1 1/4	1 1/4	8	4
AR-24	AL-24	x	.	x	.	x	1 1/2	1 1/2	8	4
AR-44	AL-44	x	.	x	.	.	1/2	1	7	6
AR-54	AL-54	x	.	x	.	.	5/8	1	6	4
AR-55	AL-55	x	.	x	.	.	5/8	1 1/4	8	4
AR-64	AL-64	x	.	x	.	.	3/4	1	6	4
AR-66	AL-66	x	.	x	.	x	3/4	1 1/2	8	4
AR-85	AL-85	x	.	x	.	x	1	1 1/4	8	4
AR-86	AL-86	x	.	x	.	x	1	1 1/2	8	4
AR-88	AL-88	x	.	x	.	x	1	2	10	4
AR-90	AL-90	.	.	.	.	.	1 1/2	2	8	4

No. Right-Hand	No. Left-Hand	Carmet Blank Right-Hand No.	Left-Hand No.	Dimen. Inches T	W	L	Std. Pkg.
AR- 4	AL- 4	2040	2040	3/32	3/16	5/16	12
AR- 5	AL- 5	2070	2070	3/32	1/4	1/2	12
AR- 6	AL- 6	2070	2070	3/32	1/4	1/2	12
AR- 7	AL- 7	2070	2070	3/32	1/4	1/2	12
AR- 8	AL- 8	2170	2170	1/8	5/16	5/8	12
AR-10	AL-10	2230	2230	5/32	3/8	3/4	12
AR-12	AL-12	2310	2310	3/16	7/16	13/16	12
AR-16	AL-16	3390	4390	1/4	9/16	1	6
AR-20	AL-20	3460	4460	5/16	5/8	1	4
AR-24	AL-24	3510	4510	3/8	5/8	1	2
AR-44	AL-44	2260	2260	3/16	5/16	5/8	6
AR-54	AL-54	3360	4360	1/4	3/8	3/4	6
AR-55	AL-55	3360	4360	1/4	3/8	3/4	6
AR-64	AL-64	3380	4380	1/4	1/2	3/4	6
AR-66	AL-66	3430	4430	5/16	7/16	15/16	4
AR-85	AL-85	3460	4460	5/16	5/8	1	4
AR-86	AL-86	3510	4510	3/8	5/8	1	2
AR-88	AL-88	3510	4510	3/8	5/8	1	2
AR-90	AL-90	3540	4540	1/2	3/4	1 1/4	2

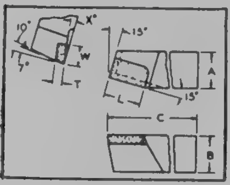
NOTE: x indicates stock.

Allegheny Ludlum Standard Lathe Tools

Carmet

Style BR, Right Hand **Style BL, Left Hand**

Style BR



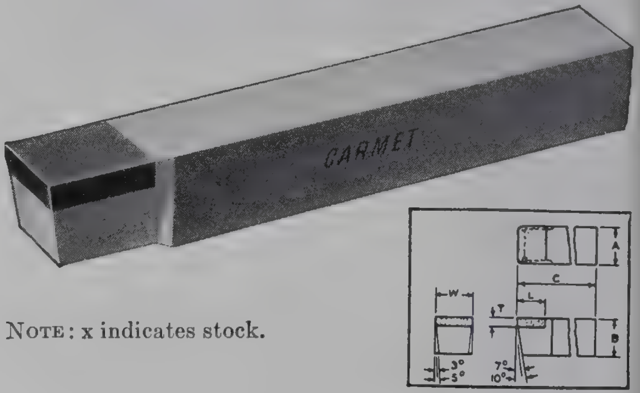
No.		CA Grades Stocked					Shank Dimen.			
Right-Hand	Left-Hand	610	608	3	4	51	A In.	B In.	C In.	X. Deg
BR- 5	BL- 5	.	x	.	x	.	5/16	5/16	2¼	6
BR- 6	BL- 6	x	x	x	x	.	⅜	⅜	2½	6
BR- 7	BL- 7	x	x	.	x	.	7/16	7/16	3	6
BR- 8	BL- 8	x	x	x	x	.	½	½	3½	6
BR-10	BL-10	x	x	x	x	.	⅝	⅝	4	6
BR-12	BL-12	x	x	x	x	.	¾	¾	4½	6
BR-16	BL-16	x	.	x	x	x	1	1	7	4
BR-20	BL-20	x	.	x	x	x	1¼	1¼	8	4
BR-24	BL-24	x	.	x	.	x	1½	1½	8	4
BR-44	BL-44	x	.	x	.	.	½	1	7	6
BR-54	BL-54	x	.	.	.	.	⅝	1	6	4
BR-55	BL-55	x	.	x	.	.	⅝	1¼	8	4
BR-64	BL-64	x	.	x	.	.	¾	1	6	4
BR-66	BL-66	x	.	x	.	x	1	1¼	8	4
BR-85	BL-85	x	.	x	.	x	1	1½	8	4
BR-86	BL-86	x	.	x	.	x	1½	2	8	4
BR-88	BL-88	.	.	.	.	.	1	2	10	4
BR-90	BL-90	.	.	.	.	.	1½	2	8	4

No.		Carmet Blank					
				Dimen., In.			
Right-Hand	Left-Hand	R.H. No.	L.H. No.	T	W	L	Std. Pkg.
BR- 5	BL- 5	1070	1070	3/32	¼	½	12
BR- 6	BL- 6	1070	1070	3/32	¼	½	12
BR- 7	BL- 7	2070	2070	3/32	¼	½	12
BR- 8	BL- 8	2170	2170	⅛	5/16	⅝	12
BR-10	BL-10	2230	2230	5/32	⅜	¾	12
BR-12	BL-12	2310	2310	3/16	7/16	13/16	12
BR-16	BL-16	3390	4390	¼	9/16	1	6
BR-20	BL-20	3460	4460	5/16	⅝	1	4
BR-24	BL-24	3510	4510	⅜	⅝	1	2
BR-44	BL-44	2260	2260	3/16	5/16	⅝	6
BR-54	BL-54	3360	4360	¼	⅜	¾	6
BR-55	BL-55	3360	4360	¼	⅜	¾	6
BR-64	BL-64	3380	4380	¼	½	¾	6
BR-66	BL-66	3430	4430	5/16	7/16	15/16	4
BR-85	BL-85	3460	4460	5/16	⅝	1	4
BR-86	BL-86	3510	4510	⅜	⅝	1	2
BR-88	BL-88	3510	4510	⅜	⅝	1	2
BR-90	BL-90	3540	4540	½	¾	1¼	2

NOTE: x indicates stock.

Style C Allegheny Ludlum Standard Lathe Tools

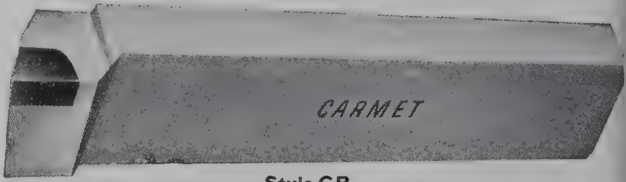
Carmet



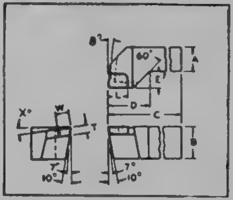
NOTE: x indicates stock.

	CA Grades Stocked					Shank Dimen. Inches			Carmet Blank				Std. Pkg.
										Dimen., In.			
No.	610	608	3	4	51	A	B	C	No.	T	W	L	
C- 4	x	x	.	x	.	¼	¼	1½	1030	1/16	¼	5/16	12
C- 5	x	x	.	x	.	5/16	5/16	2¼	1080	3/32	5/16	⅜	12
C- 6	x	x	x	x	.	⅜	⅜	2½	1090	3/32	⅜	⅜	12
C- 7	x	x	.	x	.	7/16	7/16	3	1105	3/32	7/16	½	12
C- 8	x	x	x	x	.	½	½	3½	1200	⅛	½	½	12
C-10	x	x	x	x	.	⅝	⅝	4	1240	5/32	⅝	⅝	12
C-12	x	x	x	x	.	¾	¾	4½	1340	3/16	¾	¾	12
C-16	x	.	x	x	x	1	1	7	1410	¼	1	¾	6
C-20	x	.	x	x	x	1¼	1¼	8	1480	5/16	1¼	¾	4
C-44	x	.	x	x	.	½	1	7	1320	3/16	½	½	6
C-54	x	.	x	x	.	⅝	1	6	1400	¼	⅝	⅝	6
C-55	x	.	x	x	.	⅝	1¼	8	1400	¼	⅝	⅝	6
C-64	x	.	x	.	.	¾	1	6	1405	¼	½	¾	6
C-66	x	.	x	x	.	¾	1½	8	1470	5/16	¾	¾	4
C-86	x	.	.	.	.	1	1½	8	1475	5/16	1	¾	2

Allegheny Ludlum Standard Lathe Tools



Style GR



Carmet

Style GR, Right-Hand
Style GL, Left-Hand

NOTE: x indicates stock.

No.		CA Grades Stocked					Shank Dimen.					
Right-Hand	Left-Hand	610	608	3	4	51	A In.	B In.	C In.	D In.	E In.	X Deg.
GR-44	GL-44	x	.	x	x	x	½	1	6	1	½	6
GR-55	GL-55	x	.	x	x	x	⅝	1¼	7	1¼	⅝	4
GR-64	GL-64	x	.	x	x	x	¾	1	7	1 5/16	⅝	4
GR-85	GL-85	x	.	x	x	x	1	1¼	8	1½	¾	4
GR-86	GL-86	x	.	.	.	x	1	1½	8	1 9/16	¾	4
GR-12	GL-12	x	.	.	.	.	¾	¾	4½	1⅛	⅝	6
GR-16	GL-16	x	.	.	.	x	1	1	7	1 7/16	¾	6
GR-20	GL-20	x	.	x	x	x	1¼	1¼	8	1¾	¾	4
GR-24	GL-24	x	.	.	.	x	1½	1½	8	1¾	¾	4
GR-90	GL-90	.	.	.	.	.	1½	2	8	2	¾	4

No.		Carmet Blank					
				Dimen. Inches			
Right-Hand	Left-Hand	Right-Hand No.	Left-Hand No.	T	W	L	Std. Pkg.
GR-44	GL-44	2260	2260	3/16	5/16	⅝	4
GR-55	GL-55	3360	4360	¼	⅜	¾	4
GR-64	GL-64	3380	4380	¼	½	¾	4
GR-85	GL-85	3460	4460	5/16	⅝	1	2
GR-86	GL-86	3510	4510	⅜	⅝	1	4
GR-12	GL-12	2310	2310	3/16	7/16	13/16	4
GR-16	GL-16	3390	4390	¼	9/16	1	4
GR-20	GL-20	3460	4460	5/16	⅝	1	2
GR-24	GL-24	3510	4510	⅜	⅝	1	2
GR-90	GL-90	3540	4540	½	¾	1¼	2

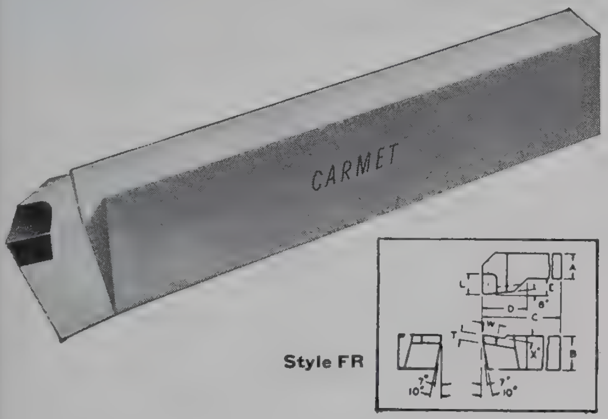
CLEVELAND TWIST DRILL PRODUCTS STOCKED IN FORT WAYNE ONLY

Allegheny Ludlum Standard Lathe Tools

Carmet

Style FR, Right-Hand

Style FL, Left Hand



Style FR

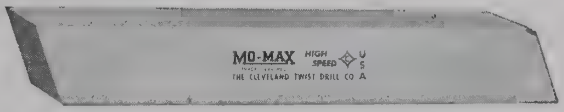
—No.—		CA					—Shank Dimen.—					
Right-Hand	Left-Hand	—Grades Stocked— 610	608	3	4	51	A In.	B In.	C In.	D In.	E In.	X Deg.
FR-44	FL-44	x	.	x	x	x	½	1	6	1	½	6
FR-55	FL-55	x	.	x	x	x	⅝	1¼	7	1¼	⅝	4
FR-64	FL-64	x	.	x	x	x	¾	1	7	1⁵⁄₁₆	⅝	4
FR-85	FL-85	x	.	x	x	x	1	1¼	8	1½	¾	4
FR-86	FL-86	x	.	.	.	x	1	1½	8	1⁹⁄₁₆	¾	4
FR-12	FL-12	x	.	.	x	.	¾	¾	4½	1⅛	⅝	6
FR-16	FL-16	x	.	.	x	x	1	1	7	1⁷⁄₁₆	¾	6
FR-20	FL-20	x	.	x	x	x	1¼	1¼	8	1¾	¾	4
FR-24	FL-24	x	.	x	.	x	1½	1½	8	1¾	¾	4
FR-90	FL-90	.	:	:	.	.	1½	2	8	2	¾	4

—No.—		—Carmet Blank—					
				Dimen. —Inches—			
Right-Hand	Left-Hand	Right-Hand No.	Left-Hand No.	T	W	L	Std. Pkg.
FR-44	FL-44	2260	2260	³⁄₁₆	⁵⁄₁₆	⅝	4
FR-55	FL-55	3360	4360	¼	⅜	¾	4
FR-64	FL-64	3380	4380	¼	½	¾	4
FR-85	FL-85	3460	4460	⁵⁄₁₆	⅝	1	2
FR-86	FL-86	3510	4510	⅜	⅝	1	2
FR-12	FL-12	2310	2310	³⁄₁₆	⁷⁄₁₆	¹³⁄₁₆	4
FR-16	FL-16	3390	4390	¼	⁹⁄₁₆	1	4
FR-20	FL-20	3460	4460	⁵⁄₁₆	⅝	1	4
FR-24	FL-24	3510	4510	⅜	⅝	1	2
FR-90	FL-90	3540	4540	½	¾	1¼	2

Note: x indicates stock.

Mo-Max Ground Tool Bits

***High Speed* Steel**



Excellent cutting qualities, machinability. Finish ground on sides after hardening. Nos. 855, 856 contain cobalt.

Packed with rust preventative in convenient packages and suitably marked for quick identification of sizes.

Squares, Both Ends Beveled 10°

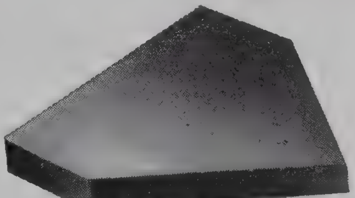
Size In.	No. 850 ***High Speed*** Steel Each	No. 855 ***High Speed*** Cobalt Each	Lgth. Over-all In.	Pcs. per Pkg.
³⁄₁₆ Sq.	**$.24**	**$.27**	2½	12
¼ Sq.	**.31**	**.37**	2½	12
⁵⁄₁₆ Sq.	**.44**	**.50**	2½	12
⅜ Sq.	**.62**	**.70**	3	12
⁷⁄₁₆ Sq.	**.81**	**.94**	3½	6
½ Sq.	**1.09**	**1.27**	4	6
⅝ Sq.	**$1.69**	**$1.96**	4½	2
¾ Sq.	**2.59**	**3.01**	5	2
⅞ Sq.	**4.45**	**5.16**	6	2
1 Sq.	**7.08**	**8.20**	7	1
1⅛ Sq.	**9.64**	**11.17**	8	1
1¼ Sq.	**13.12**	**15.22**	9	1

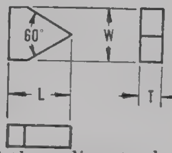
Rectangular, Square Ends

Size In.	No. 851 ***High Speed*** Steel Each	No. 856 ***High Speed*** Cobalt Each	Lgth. Over-all In.	Pcs. per Pkg.
¼ x⅜	**$.45**	**$.54**	2½	12
¼ x½	**.67**	**.76**	3	12
¼ x½	**.90**	**1.03**	4	12
¼ x½	**1.32**	**1.53**	6	12
¼ x½	**2.19**	**2.54**	10	6
⁵⁄₁₆x⁷⁄₁₆	**.74**	**.86**	3	12
⁵⁄₁₆x½	**.74**	**.86**	3	12
⅜ x½	**.81**	**.94**	3	12
⅜ x½	**1.06**	**1.23**	4	12
⅜ x½	**1.57**	**1.82**	6	6
⅜ x⅝	**1.29**	**1.50**	4	6
⅜ x⅝	**1.62**	**1.87**	5	6
⅜ x ⅝	**$1.92**	**$2.23**	6	6
⅜ x ¾	**1.46**	**1.70**	4	6
⅜ x ¾	**2.25**	**2.60**	6	6
⅜ x ¾	**5.20**	**6.03**	14	2
⁷⁄₁₆x ¾	**2.31**	**2.70**	6	4
½ x ¾	**1.57**	**1.82**	4	4
½ x ¾	**2.37**	**2.74**	6	4
½ x1	**4.10**	**4.76**	8	2
⅝ x ¾	**2.19**	**2.54**	5	2
⅝ x ⅞	**3.04**	**3.54**	6	2
¾ x1	**4.00**	**4.64**	6	1
⅞ x1⅛	**6.01**	**6.97**	7	1

Style 6000 Firthite Standard Blanks

Sintered Carbide





Replacement of tip on standard style E threading tool.

	—Grades Stocked—						Dimensions —Inches—			
No.	T-04	TXL	TA	T-16	H	HA	T	W	L	Std. Pkg.
6080	x	x	x	x	x	x	³⁄₃₂	⁵⁄₁₆	⅜	50
6100	x	x	x	x	x	x	³⁄₃₂	⅜	½	50
6200	x	x	x	x	x	x	⅛	½	½	25
6240	x	x	x	x	x	x	⁵⁄₃₂	⅝	⅝	25
6340	x	x	x	x	x	x	³⁄₁₆	¾	¾	10

Allegheny Ludlum Tool Steel Bits

Panther Special and Super Panther

Recommended for heavy duty rapid cuts on hard, gritty material such as cast iron or steel, also heat-treated alloy steels.

Bit is hardened under controlled conditions; temperatures in hardening and tempering are accurately regulated. After hardening, bit is inspected both for hardness and surface conditions. Bevelled on both ends.

Packed in boxes of one or assorted sizes.

Standard Sizes

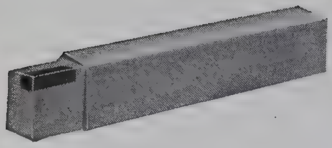
Size In.	Lgth. In.	Approx. No. per Lb.	Wt. Lb.	Size In.	Lgth. In.	Approx. No. per Lb.	Wt. Lb.
³⁄₁₆	2½	35	.0275	⁹⁄₁₆	4	2	.396
¼	2½	20	.047	⅝	4½	2	.553
⁵⁄₁₆	2½	13	.075	¾	5	1	.88
⅜	3	7	.132	⅞	6	.	1.44
⁷⁄₁₆	3½	5	.21	1	7	.	2.19
½	4	3	.312	....	...	.	.....

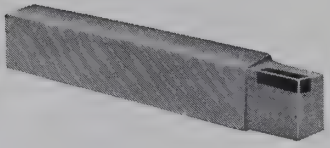
Firthite General Purpose Tools

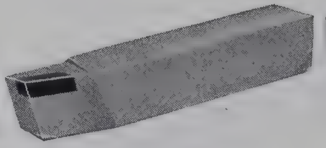
Sintered Carbide Tipped

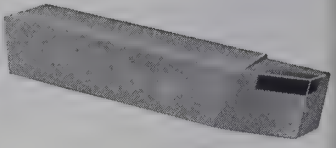
Styles AR, AL, BR and BL

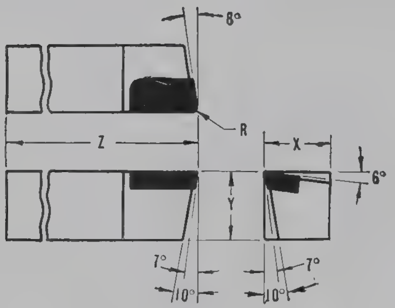
Grades H, HA, TA, T-04, TXL, T-16


Style AR

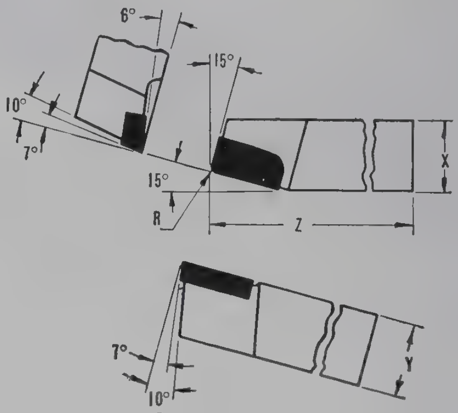

Style AL


Style BR


Style BL



Styles AR and AL



Styles BR and BL

Grade H is a tough, rugged grade for interrupted cuts and heavy cuts on cast iron or nonferrous metals. Recommended for turning heavy, rough castings, or any conventional job where the tool is subject to shock.

Grade HA is hard and wear-resistant. Maintains size on long turning and boring jobs. Recommended for cutting all materials other than steel; semi-finishing hard and chilled irons; well adapted to turning, facing, sawing, boring, and reaming extremely abrasive materials; uninterrupted cuts only on rigid machines with well-supported work and tools.

Grade TA is a general-purpose grade, recommended for cutting all types of steel under normal conditions; light, interrupted cuts; for high speeds but light cuts and feeds.

Grade TXL is a premium grade, made by new metallurgical processes, which is harder and tougher than conventional grades and excellent for milling and general purpose turning.

Grade T-04 is a strong steel-cutting carbide; resists shock, vibration, and abuse; grinds easily to keen, smooth edges; permits use of steep rakes, large relief angles, and deep chip-control grooves. Recommended for heavy duty; severe interrupted cuts on rough forgings and castings; coarse feeds, deep cuts on softer steels at slow speeds in older and larger machines, including planers.

Grade T-16, super-speed carbide for light, rapid finishing of harder steels. Highly wear-resistant, titanium-tungsten carbide-cobalt grade.

No.				Stock Grades						Dimensions, Inches						
Styles AR and AL		Styles BR and BL								Shank			Nose Rad.	Tip No.		Std. Pkg. Qty.
R.H.	L.H.	R.H.	L.H.	T-04	TXL	T-16	TA	H	HA	X	Y	Z	R	R.H.	L.H.	
AR- 4	AL- 4	......	......	x	x	x	x	x	x	1/4	1/4	1 1/2	1/64	2040	2040	12
AR- 5	AL- 5	......	......	x	x	x	x	x	x	5/16	5/16	2 1/4	1/64	2070	2070	12
AR- 6	AL- 6	BR- 6	BL- 6	x	x	x	x	x	x	3/8	3/8	2 1/2	1/64	2070	2070	12
AR- 7	AL- 7	......	......	x	x	x	x	x	x	7/16	7/16	3	1/32	2070	2070	12
AR- 8	AL- 8	BR- 8	BL- 8	x	x	x	x	x	x	1/2	1/2	3 1/2	1/32	2170	2170	12
AR-10	AL-10	BR-10	BL-10	x	x	x	x	x	x	5/8	5/8	4	1/32	2230	2230	12
AR-12	AL-12	BR-12	BL-12	x	x	x	x	x	x	3/4	3/4	4 1/2	1/32	2310	2310	12
AR-16	AL-16	BR-16	BL-16	x	x	.	x	x	x	1	1	7	1/32	3390	4390	6
AR-20	AL-20	BR-20	BL-20	x	x	.	x	x	x	1 1/4	1 1/4	8	1/32	3460	4460	4
AR-24	AL-24	BR-24	BL-24	x	x	.	x	x	x	1 1/2	1 1/2	8	1/16	3510	4510	2
AR-44	AL-44	BR-44	BL-44	x	x	.	x	x	x	1/2	1	7	1/32	2260	2260	6
AR-54	AL-54	BR-54	BL-54	x	x	.	x	x	x	5/8	1	6	1/32	3360	4360	6
AR-55	AL-55	BR-55	BL-55	x	x	.	x	x	x	5/8	1 1/4	8	1/32	3360	4360	6
AR-64	AL-64	BR-64	BL-64	x	x	.	x	x	x	3/4	1	6	1/32	3380	4380	6
AR-66	AL-66	BR-66	BL-66	x	x	.	x	x	x	3/4	1 1/2	8	1/32	3430	4430	4
AR-85	AL-85	BR-85	BL-85	x	x	.	x	x	x	1	1 1/4	8	1/32	3460	4460	4
AR-86	AL-86	BR-86	BL-86	x	x	.	x	x	x	1	1 1/2	8	1/32	3510	4510	2
AR-88	AL-88	BR-88	BL-88	x	x	.	x	x	x	1	2	10	1/16	3510	4510	2
AR-90	AL-90	BR-90	BL-90	x	x	.	x	x	x	1 1/2	2	8	1/16	3540	4540	2

NOTE: x indicates stock.

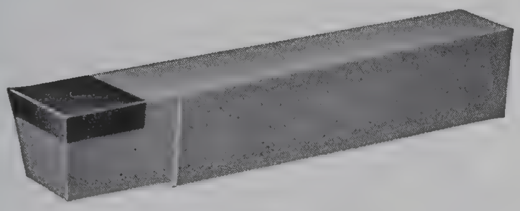
FIRTH STERLING PRODUCTS STOCKED IN FORT WAYNE ONLY

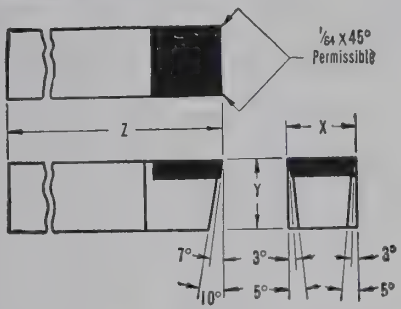
Firthite General Purpose Tools

Sintered Carbide Tipped

Style C

Grades H, HA, TA, T-04, TXL, T-16





Grade H is a tough, rugged grade for interrupted cuts and heavy cuts on cast iron or non-ferrous metals. Recommended for turning heavy, rough castings, or any conventional job where the tool is subject to shock.

Grade HA is hard and wear resistant. Maintains size on long turning and boring jobs. Recommended for cutting all materials other than steel; semi-finishing hard and chilled irons; well adapted to turning, facing, sawing, boring, and reaming extremely abrasive materials; uninterrupted cuts only on rigid machines with well-supported work and tools.

Grade TA general-purpose grade, recommended for cutting all types of steel under normal conditions; light, interrupted cuts; for high speeds but light cuts and feeds.

Grade TXL is a premium grade, made by new metallurgical processes, which is harder and tougher than conventional grades and excellent for milling and general purpose turning.

Grade T-04 strong steel-cutting carbide; resists shock, vibration, abuse; grinds to keen, smooth edges; permits use of steep rakes, large relief angles, and deep chip-control grooves. For heavy duty; severe interrupted cuts on rough forgings and castings; coarse feeds, deep cuts on softer steels at slow speeds in older and large machines, including planers.

Grade T-16, super-speed carbide for light, rapid finishing of hard steel; highly wear-resistant titanium-tungsten carbide-cobalt grade.

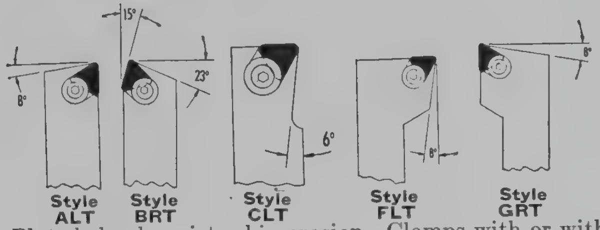
Grades not listed, prices upon application.

No.	Stock Grades T-04	TXL	TA	T-16	H	HA	Shank Dimen. Inches X	Y	Z	Tip No.	Std. Pkg. Qty.
C- 4	x	x	x	x	x	x	1/4	1/4	1 1/2	1030	12
C- 5	x	x	x	x	x	x	5/16	5/16	2 1/4	1080	12
C- 6	x	x	x	x	x	x	3/8	3/8	2 1/2	1090	12
C- 7	x	x	x	x	x	x	7/16	7/16	3	1105	12
C- 8	x	x	x	x	x	x	1/2	1/2	3 1/2	1200	12
C-10	x	x	x	x	x	x	5/8	5/8	4	1240	12
C-12	x	x	x	x	x	x	3/4	3/4	4 1/2	1340	12
C-16	x	x	x	.	x	x	1	1	7	1410	6
C-20	x	x	x	.	x	x	1 1/4	1 1/4	8	1480	4
C-44	x	x	x	.	x	x	1/2	1	7	1320	6
C-54	x	x	x	.	x	x	5/8	1	6	1400	6
C-55	x	x	x	.	x	x	5/8	1 1/4	8	1400	6
C-64	x	x	x	.	x	x	3/4	1	6	1405	6
C-66	x	x	x	.	x	x	3/4	1 1/2	8	1470	4
C-86	x	x	x	.	x	x	1	1 1/2	8	1475	2

NOTE: x indicates stock.

Firthite Thriftools

FIRTHITE THRIFTOOL



Plated shank resists chip erosion. Clamps with or without chip breaker are available. Positive, negative or neutral rake possible with proper insert design.

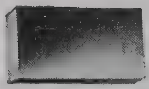
Tool No. Styles ART, ALT	Styles BRT, BLT	Shank, In. Width	Ht.	Lgth.	Std. Pkg.	Clamp No. Reg.	Chip-Breaker	Insert No.
ART8	BRT8	1/2	1/2	3 1/2	6	C-6	......	TB8P2
ALT8	BLT8	1/2	1/2	3 1/2	6	C-6	......	TB8P2
ART10	BRT10	5/8	5/8	4	6	C-6	......	TB8P2
ALT10	BLT10	5/8	5/8	4	6	C-6	......	TB8P2
ART12	BRT12	3/4	3/4	4 1/2	6	C-8	TCR8	TB12P3
ALT12	BLT12	3/4	3/4	4 1/2	6	C-8	TCL8	TB12P3
ART16	BRT16	1	1	7	4	C-8	TCR8	TB12P3
ALT16	BLT16	1	1	7	4	C-8	TCL8	TB12P3
ART20	BRT20	1 1/4	1 1/4	8	2	C-8	TCR8	TB12P3
ALT20	BLT20	1 1/4	1 1/4	8	2	C-8	TCL8	TB12P3
ART44	BRT44	1/2	1	7	4	C-6	......	TB8P2
ALT44	BLT44	1/2	1	7	4	C-6	......	TB8P2
ART64	BRT64	3/4	1	6	4	C-8	TCR8	TB12P3
ALT64	BLT64	3/4	1	6	4	C-8	TCL8	TB12P3
ART55S	BRT55S	5/8	1 1/4	8	4	C-6	......	TB8P2
ALT55S	BLT55S	5/8	1 1/4	8	4	C-6	......	TB8P2
*ART55M	*BRT55M	5/8	1 1/4	8	4	C-8	TCR8	TB12P3
*ALT55M	*BLT55M	5/8	1 1/4	8	4	C-8	TCL8	TB12P3
ART85	BRT85	1	1 1/4	8	2	C-8	TCR8	TB12P3
ALT85	BLT85	1	1 1/4	8	2	C-8	TCL8	TB12P3
ART86	BRT86	1	1 1/2	8	2	C-8	TCR8	TB12P3
ALT86	BLT86	1	1 1/2	8	2	C-8	TCL8	TB12P3

Tool No. Styles CRT, CLT	Styles FRT, FLT	Styles GRT, GLT	Shank, In. Width	Ht.	Lgth.	Std. Pkg. Styles CRT, CLT	Clamp No. Reg.	Chip-Breaker	Insert No.
CRT8	......	....	1/2	1/2	3 1/2	6	C-6	.....	TB8P2
CLT8	......	....	1/2	1/2	3 1/2	6	C-6	.....	TB8P2
CRT10	......	....	5/8	5/8	4	6	C-6	.....	TB8P2
CLT10	......	....	5/8	5/8	4	6	C-6	.....	TB8P2
CRT12	FRT12	GRT12	3/4	3/4	4 1/2	‡6	C-8	TCR8	TB12P3
CLT12	FLT12	GLT12	3/4	3/4	4 1/2	‡6	C-8	TCL8	TB12P3
CRT16	FRT16	GRT16	1	1	7	§4	C-8	TCR8	TB12P3
CLT16	FLT16	GLT16	1	1	7	§4	C-8	TCL8	TB12P3
CRT20	FRT20	GRT20	1 1/4	1 1/4	8	§2	C-8	TCR8	TB12P3
CLT20	FLT20	GLT20	1 1/4	1 1/4	8	§2	C-8	TCL8	TB12P3
CRT44	......	....	1/2	1	7	4	C-6	.....	TB8P2
CLT44	......	....	1/2	1	7	4	C-6	.....	TB8P2
CRT64	......	....	3/4	1	6	4	C-8	TCR8	TB12P3
CLT64	......	....	3/4	1	6	4	C-8	TCL8	TB12P3
CRT55S	......	....	5/8	1 1/4	8	4	C-6	.....	TB8P2
CLT55S	......	....	5/8	1 1/4	8	4	C-6	.....	TB8P2
CRT55M	FRT55M	GRT55M	5/8	1 1/4	†7	§4	C-8	TCR8	TB12P3
CLT55M	FLT55M	GLT55M	5/8	1 1/4	†7	§4	C-8	TCL8	TB12P3
....	FRT85	....	1	1 1/4	8	‖	C-8	TCR8	TB12P3
....	FLT85	....	1	1 1/4	8	‖	C-8	TCL8	TB12P3

*Offset shank similar to Style G. †Lgth. 8 in. for Styles CRT and CLT. ‡4 for other styles. §2 for other styles. ‖2 for Styles FRT, FLT.

Firthite Industry Standard **Carbide** Blanks

Sintered Carbide

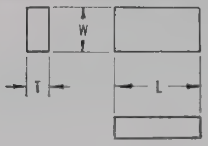


Styles 0000 and 1000

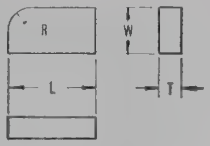
Firthite tips are made to uniformly close tolerances. Tips permit use of maximum machine speeds when cutting ferrous or non-ferrous metals and plastics.

Edge-wear and crater-resistant features provide an economical **sintered carbide**. Unground finish.

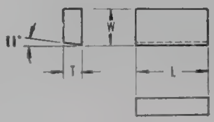
Styles 2000, 3000 and



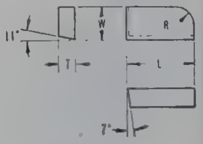
Style 1000



Style 2000



Style 0000

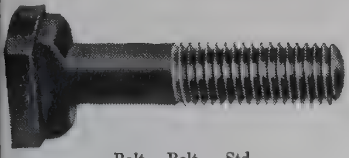


Style 3000, Left-Hand

Dimen., Inches			Style 0000	Style 1000	Style 2000		Style 3000		Style 4000		Stock Grades								Std.
Thickness T	Wdth. W	Lgth. L	Tip No.	Tip No.	Tip No.	Radius R In.	Tip No.	Radius R In.	Tip No.	Radius R In.	T-04	TA	TXL	T-16	H	HA	T-31	HE	Pkg.
1/16	1/8	5/8	....	1010	2010	1/8	....	..	....	..	x	x	x	x	x	x	x	x	50
1/16	3/16	1/4	....	1020	2020	1/8	....	..	....	..	x	x	x	x	x	x	x	x	50
1/16	1/4	1/4	....	1025	2025	1/8	....	..	....	..	x	x	x	x	x	x	x	x	50
1/16	1/4	5/16	....	1030	2030	1/8	....	..	....	..	x	x	x	x	x	x	.	.	50
3/32	3/16	5/16	....	1040	2040	1/8	....	..	....	..	x	x	x	x	x	x	.	.	50
3/32	3/16	1/2	....	1050	2050	1/8	....	..	....	..	x	x	x	x	x	x	x	x	50
3/32	1/4	3/8	....	1060	2060	1/8	....	..	....	..	x	x	x	x	x	x	x	x	50
3/32	1/4	1/2	....	1070	2070	1/8	....	..	....	..	x	x	x	x	x	x	x	x	50
3/32	5/16	3/8	....	1080	2080	3/16	....	..	....	..	x	x	x	x	x	x	x	x	25
3/32	3/8	3/8	....	1090	2090	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
3/32	3/8	1/2	....	1100	2100	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
3/32	7/16	1/2	....	1105	2105	1/4	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	3/16	3/4	....	1110	2110	1/8	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	1/4	1/2	....	1120	2120	1/8	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	1/4	5/8	....	1130	2130	1/8	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	1/4	3/4	....	1140	2140	1/8	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	5/16	7/16	....	1150	2150	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	5/16	1/2	....	1160	2160	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	5/16	5/8	....	1170	2170	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	3/8	1/2	....	1180	2180	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	3/8	3/4	....	1190	2190	3/16	....	..	....	..	x	x	x	x	x	x	x	x	25
1/8	1/2	1/2	....	1200	2200	1/4	....	..	....	..	x	x	x	x	x	x	.	.	25
1/8	1/2	3/4	....	1210	2210	1/4	....	..	....	..	x	x	x	x	x	x	.	.	10
1/8	3/4	3/4	....	1215	2215	1/4	....	..	....	..	x	x	x	x	x	x	.	.	25
5/32	3/8	9/16	....	1220	2220	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
5/32	3/8	3/4	....	1230	2230	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
5/32	5/8	5/8	....	1240	2240	1/4	....	..	....	..	x	x	x	x	x	x	.	.	25
3/16	5/16	7/16	....	1250	2250	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
3/16	5/16	5/8	....	1260	2260	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
3/16	3/8	1/2	....	1270	2270	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
3/16	3/8	5/8	....	1280	2280	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
3/16	3/8	3/4	....	1290	2290	3/16	....	..	....	..	x	x	x	x	x	x	.	.	25
3/16	7/16	5/8	....	1300	2300	1/4	....	..	....	..	x	x	x	x	x	x	.	.	10
3/16	7/16	13/16	....	1310	2310	1/4	....	..	....	..	x	x	x	x	x	x	.	.	25
3/16	1/2	1/2	....	1320	2320	1/4	....	..	....	..	x	x	x	x	x	x	.	.	10
3/16	1/2	3/4	....	1330	2330	1/4	....	..	....	..	x	x	x	x	x	x	.	.	10
3/16	3/4	3/4	....	1340	2340	1/4	....	..	....	..	x	x	x	x	x	x	.	.	10
1/4	3/8	9/16	....	1350	....	..	3350	3/16	4350	3/16	x	x	x	x	x	x	.	.	25
1/4	3/8	3/4	....	1360	....	..	3360	3/16	4360	3/16	x	x	x	x	x	x	.	.	10
1/4	7/16	5/8	....	1370	....	..	3370	1/4	4370	1/4	x	x	x	x	x	x	.	.	10
1/4	1/2	3/4	0380	1380	....	..	3380	1/4	4380	1/4	x	x	x	x	x	x	.	.	10
1/4	9/16	1	0390	1390	....	..	3390	1/4	4390	1/4	x	x	x	x	x	x	.	.	10
1/4	5/8	5/8	....	1400	....	..	3400	1/4	4400	1/4	x	x	x	x	x	x	.	.	10
1/4	3/4	3/4	....	1405	....	..	3405	1/4	4405	1/4	x	x	x	x	x	x	.	.	10
1/4	3/4	1	0410	1410	....	..	3410	1/4	4410	1/4	x	x	x	x	x	x	.	.	10
5/16	7/16	5/8	....	1420	....	..	3420	1/4	4420	1/4	x	x	x	x	x	x	.	.	10
5/16	7/16	15/16	....	1430	....	..	3430	1/4	4430	1/4	x	x	x	x	x	x	.	.	10
5/16	1/2	3/4	....	1440	....	..	3440	1/4	4440	1/4	x	x	x	x	x	x	.	.	10
5/16	1/2	1	....	1450	....	..	3450	1/4	4450	1/4	x	x	x	x	x	x	.	.	10
5/16	5/8	1	0460	1460	....	..	3460	1/4	4460	1/4	x	x	x	x	x	x	.	.	10
5/16	3/4	3/4	....	1470	....	..	3470	1/4	4470	1/4	x	x	x	x	x	x	.	.	10
5/16	3/4	1	....	1475	....	..	3475	1/4	4475	1/4	x	x	x	x	x	x	.	.	5
5/16	3/4	1 1/4	0480	1480	....	..	3480	1/4	4480	1/4	x	x	x	x	x	x	.	.	5
3/8	1/2	3/4	....	1490	....	..	3490	1/4	4490	1/4	x	x	x	x	x	x	.	.	10
3/8	1/2	1	0500	1500	....	..	3500	1/4	4500	1/4	x	x	x	x	x	x	.	.	10
3/8	5/8	1	0510	1510	....	..	3510	1/4	4510	1/4	x	x	x	x	x	x	.	.	5
3/8	3/4	1 1/4	....	1520	....	..	3520	1/4	4520	1/4	x	x	x	x	x	x	.	.	5
3/8	3/4	1 1/2	0525	1525	....	..	3525	1/4	4525	1/4	x	x	x	x	x	x	.	.	5
1/2	3/4	1	....	1530	....	..	3530	1/4	4530	1/4	x	x	x	x	x	x	.	.	5
1/2	3/4	1 1/4	0540	1540	....	..	3540	1/4	4540	1/4	x	x	x	x	x	x	.	.	5
1/2	3/4	1 1/2	0550	1550	....	..	3550	1/4	4550	1/4	x	x	x	x	x	x	.	.	5

Note: x indicates stock.

Armstrong T Slot Bolts



For setting up work on planers, shapers, milling machines, etc. Forged from selected steel. With U.S. Standard threads, ready for use.

No.	Each	Bolt Diam. Inches	Bolt Length Inches	Std. Pkg. Qty.	No.	Each	Bolt Diam. Inches	Bolt Length Inches	T Slot Inches	Std. Pkg. Qty.
7984	$.16	3/8	1	25	8322	$.56	3/4	2	...	25
7990	.16	3/8	1 1/2	25	8323	.57	3/4	2 1/2	...	25
7991	.16	3/8	2	25	8324	.59	3/4	3	...	25
7992	.19	3/8	2 1/2	25	8325	.63	3/4	3 1/2	...	25
7993	.19	3/8	3	25	8326	.63	3/4	4	...	25
7994	.19	3/8	3 1/2	25	8327	.67	3/4	4 1/2	...	25
7995	.19	3/8	4	25	8328	.69	3/4	5	...	25
7996	.21	3/8	4 1/2	25	8329	.72	3/4	5 1/2	...	25
7997	.21	3/8	5	25	8330	.72	3/4	6	...	25
7998	.23	3/8	5 1/2	25	7894	.78	3/4	7	...	1
7999	.27	3/8	6	25	8331	.82	3/4	8	...	1
7985	.28	3/8	7	1	8332	.91	3/4	10	...	1
8000	.31	3/8	8	1	8333	1.00	3/4	12	...	1
8281	.32	1/2	1 1/2	25	7896	1.10	3/4	14	...	1
8282	.31	1/2	2	25	7897	1.20	3/4	16	...	1
8283	.31	1/2	2 1/2	25	7898	1.29	3/4	18	...	1
8284	.31	1/2	3	25	7899	1.37	3/4	20	...	1
8285	.32	1/2	3 1/2	25	7700	.66	3/4	2 1/2	7/8	25
8286	.34	1/2	4	25	7701	.69	3/4	3	7/8	25
8287	.37	1/2	4 1/2	25	7702	.71	3/4	3 1/2	7/8	25
8288	.37	1/2	5	25	7703	.72	3/4	4	7/8	25
8289	.41	1/2	5 1/2	25	7704	.76	3/4	4 1/2	7/8	25
8290	.43	1/2	6	25	7705	.78	3/4	5	7/8	25
8038	.45	1/2	7	1	7706	.79	3/4	5 1/2	7/8	25
8291	.50	1/2	8	1	7707	.82	3/4	6	7/8	25
8292	.54	1/2	10	1	7708	.88	3/4	7	7/8	1
8293	.63	1/2	12	1	7709	.94	3/4	8	7/8	1
8301	.43	5/8	1 1/2	25	7711	1.05	3/4	10	7/8	1
8302	.43	5/8	2	25	7712	1.10	3/4	12	7/8	1
8303	.44	5/8	2 1/2	25	7713	1.32	3/4	14	7/8	1
8304	.45	5/8	3	25	7714	1.44	3/4	16	7/8	1
8305	.45	5/8	3 1/2	25	7715	1.54	3/4	18	7/8	1
8306	.50	5/8	4	25	7716	1.64	3/4	20	7/8	1
8307	.50	5/8	4 1/2	25	7719	.82	7/8	3	1	25
8308	.53	5/8	5	25	7720	.88	7/8	4	1	25
8309	.53	5/8	5 1/2	25	7721	.94	7/8	5	1	25
8310	.56	5/8	6	25	7722	.98	7/8	6	1	25
7890	.59	5/8	7	1	7723	1.10	7/8	7	1	1
8311	.63	5/8	8	1	7724	1.15	7/8	8	1	1
8312	.69	5/8	10	1	7726	1.26	7/8	10	1	1
8313	.76	5/8	12	1	7727	1.38	7/8	12	1	1
7892	.83	5/8	14	1	7728	1.54	7/8	14	1	1
7893	.89	5/8	16	1	7729	1.64	7/8	16	1	1
7888	.97	5/8	18	1	7730	1.77	7/8	18	1	1
7889	1.03	5/8	20	1	7731	1.88	7/8	20	1	1

Nuts

Made from special steel and heat-treated. Furnished only with U.S. standard threads. Standard package quantity, 100.

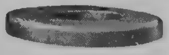
No.	N-19	N-20	N-21	N-22	N-23
Each	$.10	.13	.21	.28	.43
Bolt Diam. ....in.	3/8	1/2	5/8	3/4	7/8
O.D......in.	11/16	7/8	1 1/16	1 1/4	1 7/16
Thick....in.	1/2	5/8	3/4	7/8	1

Washers

Heavy extra thick washers made from cold rolled bar stock. Casehardened.

Hole diameter is 1/32 over bolt size.

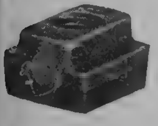
Standard package quantity, 100.



No.	W-9	W-10	W-11	W-12	W-13
Each	$.06	.09	.10	.13	.21
Bolt Diameter..inches	3/8	1/2	5/8	3/4	7/8
Across Flat.....inches	7/8	1	1 1/4	1 1/2	1 3/4
Thickness......inches	3/16	3/16	1/4	1/4	1/4

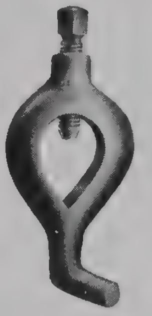
T Slot Nuts

Furnished tapped and hardened.
Packaged 25 in a box.

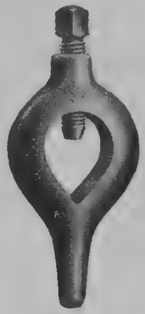


No.	5TN	6TN	7TN	8TN
Each	$.50	.73	.98	1.23
Size...inches	5/8	3/4	7/8	1
USS Threads ....in.	1/2-13	5/8-11	3/4-10	7/8-9

Armstrong Square Head Screw Lathe Dogs



Bent Tail



Straight Tail

Drop-forged from a special grade of open hearth steel.

Alloy steel screws, with U.S. Standard thread. Hardened on the point.

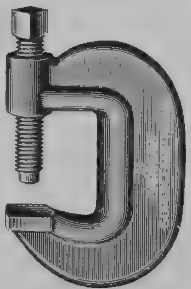
Hubs are large enough to permit retapping.

	With Bent Tail			With Straight Tail			Square Head Screw		
Cap. In.	No.	Complete with Screw Each	Wt. Lb.	No.	Complete with Screw Each	Wt. Lb.	Each	Diam. In.	Lgth. Under Head In.
3/8	1	$1.38	1/4	21	$1.38	1/4	$.28	5/16	1 1/16
1/2	2	1.54	3/8	22	1.54	1/4	.31	3/8	1 3/16
3/4	3	1.66	1/2	23	1.66	1/2	.32	7/16	1 7/16
1	4	1.95	3/4	24	1.95	3/4	.39	1/2	1 3/4
1 1/4	5	2.36	1 1/2	25	2.36	1 1/4	.41	9/16	2
1 1/2	6	2.77	2	26	2.77	2	.53	9/16	2 3/8
1 3/4	7	3.36	2 3/4	27	3.36	2 1/2	.60	5/8	2 3/8
2	8	3.90	3 1/2	28	3.90	3 1/4	.72	11/16	2 3/4
2 1/2	9	5.01	5 1/4	29	5.01	4 3/4	.93	3/4	3 1/8
3	10	6.39	6 3/4	30	6.39	6 3/4	1.00	3/4	3 1/8
3 1/2	11	8.33	9	31	8.33	8	1.38	7/8	3 5/8
4	12	12.50	12	32	12.50	11	1.54	7/8	3 5/8
5	13	22.24	18	33	22.24	17	2.10	1	4 1/4

No. 40 Hargrave Superclamps

Forged Steel—Heavy Service

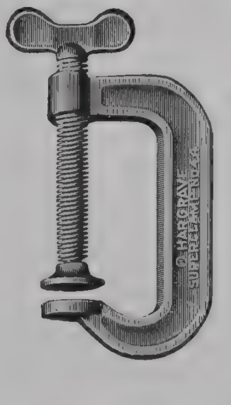
Frame is forged from an extremely stiff steel, heat treated. Screw is hardened steel. Models 1 3/4-inch and larger can be furnished full length screws at extra cost.



Max. Opening In.	Complete Each	Min. Opening In.	Depth Throat In.	Diam. Screw In.	Test Load Lb.
3/4	$2.20	0	11/16	3/8	2,500
1 1/4	3.20	0	1 1/8	3/8	6,600
1 3/4	5.30	3/4	1 9/16	1/2	8,750
2 1/4	7.40	7/8	1 7/8	5/8	12,500
3 1/4	10.60	1 3/8	2 1/2	7/8	16,250
4 1/2	13.80	2	2 3/4	7/8	20,000
5 1/2	17.00	2 1/2	3 1/4	7/8	23,800
6 1/2	21.20	3 1/8	3 1/4	1	27,800
8 1/2	29.70	4 1/4	3 5/8	1 1/8	31,250
10 1/2	40.30	6 3/8	4	1 1/8	35,000
12 1/2	53.00	7 5/8	4 1/2	1 1/4	40,000

No. 44 Hargrave Forged Steel Superclamps

Regular Service—Tested



Frame is forged from an extremely stiff steel, heat treated.

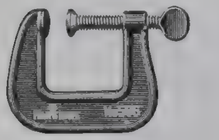
Screw is hardened steel, large diameter, with wing forged integral.

Sliding pin handle can be furnished special instead of regular wing. Clamps with wing regularly furnished.

Open. In.	Each	Depth In.	Test Load Lb.	Wt., Lb. per Doz.
2	$2.10	1 3/4	2700	12 1/2
3	2.32	2 1/4	3000	19
4	2.76	2 1/2	3700	27
6	3.30	3 1/8	4500	44
8	4.62	3 3/4	5200	69
10	6.50	4	6000	100
12	7.92	4	8000	137

Hargrave Small C Clamps

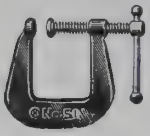
Used in aircraft and other industrial plants. Malleable frame, steel screw. Flat wing and riveted button tip. Natural finish.



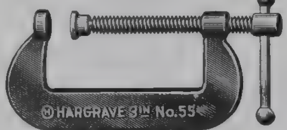
No.	566	568
Each	$.40	.78
Opening ... inches	1¼	2½
Depth ... inches	1¼	2½
No. Doz. per Box	6	2
Weight per Dozen ... pounds	2½	9¼

Hargrave Super-Junior Forged Steel Clamps

With Sliding Pin Handle



No. 51



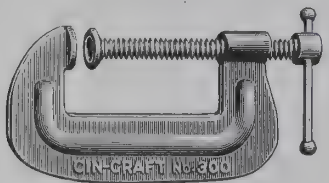
No. 55

Especially suitable for jig and pattern work, gluing, welding, and aircraft construction.

Made of forged steel, heat treated. Steel screws are nickel plated. Frame has gun metal finish. Wing handles optional.

No	50	51	52	53	54	55	56
Each	$.40	.42	.44	.50	.66	.84	.98
Max. Opening ... in.	1	1	1¼	1½	2	3	2½
Depth ... inches	1	1½	1¼	1½	1¼	1⅜	2½
No. in Box	12	12	12	12	6	6	6
Weight Per Box ... lb.	1	2¼	2½	3½	2	3¼	4

No. 300 Hargrave Cin-Craft Small C Clamps



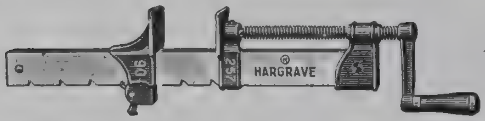
For home, farm and small shop use.

Wrought steel frame; screw handle and pressure tip bright plated, frame enameled finish.

Opening ... inches	1	2	2½	3
No. **300** ... each	$.25	.35	.79	.55
*Depth ... inches	15/16	⅞	2½	1¼
Pkg. Qty. ... per box	12	12	6	6
Wt. per Box ... pounds	1⅝	4	5	5

*Depth given is distance from center of screw to frame or bar.

Hargrave Perfection Clamps



The bar is high carbon manganese spring steel, giving great strength. Frame, tip and slide are of the best grade malleable iron. Dog for slide is tempered steel. Tip has case hardened bearing to take end thrust of screw.

No. 440 Regular Pattern

Clamping surfaces 2 inches deep, 1⅞ inches wide. Size bar, 1½x¼ inch. Heat treated screw, ⅝-inch diameter, with deep cut acme threads and extra long bearings.

Opens ... feet	2	2½	3	4	5	6
No. **440** ... each	$5.88	6.00	6.20	6.92	7.66	8.40
Wt., Each ... lb.	6	6¾	7¼	8½	9¾	11

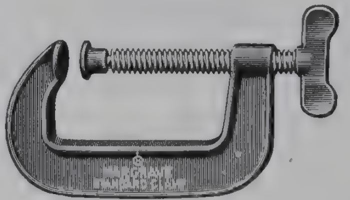
No. 450 Heavy Pattern

Clamping surfaces 2¼ inches deep, 2¼ inches wide. Size bar, 1¾x⅜ inch. Heat treated screw, ¾-inch diameter, with deep cut acme threads and extra long bearings.

Opens ... feet	3	4	5	6	7	8	10
No. **450** ... each	$12.60	13.02	13.76	14.50	15.54	16.60	21.00
Wt., Each ... lb.	13⅝	15¾	17¾	19¾	21¾	23¾	27¾

No. 540 Hargrave Standard Carriage Clamps

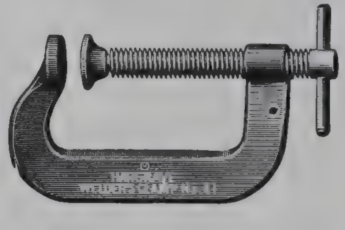
Frame is special analysis metal, very strong. Steel screw, treated to prevent bending and battering of threads. Single pitch acme thread combines power with long life. Wing is steel, forged integral. Steel tip gives long service. Each clamp power tested.



Size Open In.	Each	Depth In.	Wt. Lb. per Doz.
2½	$1.34	1¾	10⅓
3	1.50	1⅞	12
4	1.78	2 1/16	21¾
5	2.24	2½	26½
6	2.68	2¾	31¼
8	3.96	3¼	53
10	5.46	3⅝	76½
12	7.04	3⅝	95
14	8.80	3¾	108

No. 41 Hargrave Welders' Clamps

Regular Service—With Anti-Spatter Screws

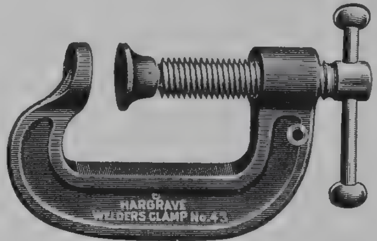


Screw is made of special alloy, solid, not plated, that permanently resists spatter. Large diameter prevents bending or breaking. Oscillating ball and socket tip is steel, put on to stay. Strong forged steel, heat-treated frame. Machine tested, drilled for ground wire.

Opening ... inches	2	3	4	6
No. **41** ... each	$3.70	4.00	4.80	5.70
Depth Throat ... inches	1¾	2¼	2½	2¾
Diameter Screw ... inches	½	⅝	⅝	¾
Test Load ... pounds	2700	3000	3700	4500
Weight ... pounds	⅞	1¾	2¼	3⅝

No. 43 Hargrave Welders' Clamps

With Anti-Spatter Screw

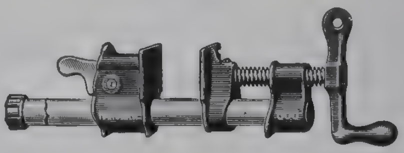


Screw made of solid alloy that resists loading. Any particles of spatter which stick to threads can be easily cleaned off by backing screw through bearing.

Forged steel frame, heat treated. Frame has hole for making ground connection.

Max. Openings ... in.	4	6	8	10	12
No. **43** ... ea.	$8.30	9.80	11.70	14.80	17.00
Min. Opening ... in.	0	0	2	3	5
Depth Throat ... in.	2½	2¾	2¾	3	3
Diam. Screw ... in.	⅞	⅞	1	1⅛	1⅛
Test Load ... lb.	10,000	11,250	12,500	13,750	15,000
Weight ... lb.	4¾	6⅛	7⅛	10¼	11

No. 600 Hargrave Clamp Fixtures



Easy to assemble. Can be applied to any odd length of ¾-inch pipe. Black iron pipe is recommended, extra heavy for ordinary clamping and double extra heavy where greater pressure is required.

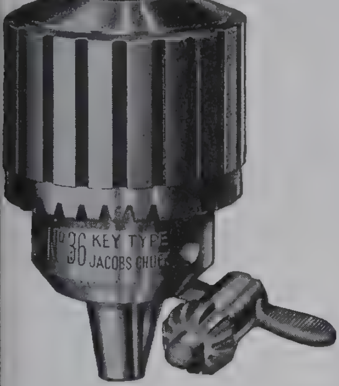
Hardened steel cam with milled teeth locks slide.

Malleable iron parts, steel screw, ⅝-inch diameter, heat-treated. Clamping surfaces 1¾ inches wide, 1¾ inches high. Furnished without pipe.

Weight, per dozen sets, 27 pounds.

No. **600** ... each **$3.30**

Jacobs Plain Bearing Chucks



The Jacobs Plain Bearing Chuck is the most widely used chuck in the world today—standard equipment with the vast majority of portable tool makers here and abroad.

Unmatched for accuracy, strength, and gripping power, it is the ideal drill chuck. Furnished with both tapered and threaded back mounts.

Light Duty—For Tapered Arbors and Spindles

No.	Each	Keys Each	Jaws & Nuts Per Set	Sleeves Each	Cap. In.	‖Taper
0	$6.96	$.37	$3.21	$1.07	0–5/32	0JT
1A	5.89	.37	2.41	.96	0–1/4	1JT
2A	6.96	.53	2.67	1.07	0–3/8	2JT
33	8.02	.53	3.21	1.18	5/64–1/2	33JT
*3333C	9.09	.53	3.21	1.18	5/64–1/2	33JT
3326	8.02	.53	3.21	1.18	5/64–1/2	†5/8
6A-2A	8.56	.59	3.48	1.50	0–1/2	2JT
6A-33	8.56	.59	3.48	1.50	0–1/2	33JT
*633C	9.63	.59	3.48	1.50	0–1/2	33JT
§633D	9.63	.59	3.48	1.50	0–1/2	33JT
6A-E	8.56	.59	3.48	1.50	0–1/2	EJT

‡Light Duty—For Threaded Spindles

No.	Each	Cap. In.	Thread	No.	Each	Cap. In.	Thread
B5/16–24	$6.96	0–5/32	5/16–24	6B1/2–20	$8.56	0–1/2	1/2–20
B3/8 –24	5.89	0–1/4	3/8–24	6B1/2–24	8.56	0–1/2	1/2–24
B3/8 –24	5.89	0–3/16	3/8–24	33B3/8–24	8.02	5/64–1/2	3/8–24
B5/16–24	5.89	0–1/4	5/16–24	33B1/2–20	8.02	5/64–1/2	1/2–20
B3/8 –24	6.96	0–3/8	3/8–24	33B5/8–16	8.02	5/64–1/2	5/8–16
B1/2 –13	8.56	0–1/2	1/2–13	....	....	.....	.....

Medium Duty—For Tapered Arbors and Spindles

No.	Each	Keys Each	Jaws & Nuts Per Set	Sleeves Each	Cap. In.	‖Taper
7	$5.89	$.43	$2.41	$.96	0–1/4	2 Short JT
7-1A	5.89	.43	2.41	.96	0–1/4	1JT
30	6.42	.48	2.67	.96	0–5/16	2 Short JT
30-1A	6.42	.48	2.67	.96	0–5/16	1JT
32	6.96	.53	2.67	1.18	0–3/8	2JT
34	8.56	.59	3.48	1.50	0–1/2	6JT
3	10.16	.59	4.01	1.87	0–17/32	3JT
3A	10.16	.59	4.01	1.87	1/8–5/8	3JT
3A-E	10.16	.59	4.01	1.87	1/8–5/8	EJT
36	12.84	.86	5.08	2.41	3/16–3/4	3JT
36E	12.84	.86	5.08	2.41	3/16–3/4	EJT

‡Medium Duty—For Threaded Spindles

No.	Each	Cap., In.	Thread
3B 5/8–11	$10.16	1/8–5/8	5/8–11
3B 5/8–16	10.16	1/8–5/8	5/8–16
3B 45/64–16	10.16	1/8–5/8	45/64–16
3B 3/4–16	10.16	1/8–5/8	3/4–16
7B 3/8–24	5.89	0–1/4	3/8–24
7B 1/2–20	5.89	0–1/4	1/2–20
30B 3/8–24	6.42	0–5/16	3/8–24
30B 1/2–20	6.42	0–5/16	1/2–20
32B 1/2–20	6.96	0–3/8	1/2–20
32B 5/8–16	6.96	0–3/8	5/8–16
32B 45/64–16	6.96	0–3/8	45/64–16
34B 5/8–16	8.56	0–1/2	5/8–16
34B 45/64–16	8.56	0–1/2	45/64–16
34B 3/4–16	8.56	0–1/2	3/4–16
36B 5/8–16	12.84	3/16–3/4	5/8–16
36B 3/4–16	12.84	3/16–3/4	3/4–16

*Equipped with a threaded locking collar which has a 1 1/16x20 thread.

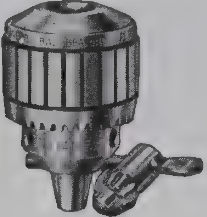
†Straight hole.

‡Parts for B threaded chucks are interchangeable with the tapered models and carry the same prices.

§Equipped with threaded locking collar 1 1/4–12 thread.

‖Suffix JT signifies Jacobs Taper Hole.

Jacobs Ball Bearing Super Drill Chucks



No. 14N

For machine shop and toolroom, on drilling machines, lathes, screw machines and drilling operations requiring gripping power, accuracy and wearing quality. Ball bearings eliminate friction, making chuck easy to operate. Tightens by hand for ordinary drilling and tool work. Only slight pressure on key necessary for heaviest drilling. Interchangeable on all present Jacobs equipped spindles.

Model N Super Chucks have an inserted ball thrust race.

No..........	8 1/2N	11N	14N	16N	18N	20N
Each.........	$7.49	9.09	12.30	14.44	20.33	28.00
Capacity...in.	0–1/4	0–3/8	0–1/2	1/8–5/8	1/8–3/4	3/8–1
Taper No.....	2 Short JT	2JT	3JT	3JT	4JT	5JT

Parts

No...............	8 1/2N	11N	14N	16N	18N	20N
Keys..........each	$.48	$.53	$.59	$.86	$.86	$1.44
Jaws and Nuts ....per set	3.21	3.74	4.81	5.89	7.49	10.16
Sleeves........each	1.07	1.50	2.14	2.57	3.74	5.35
Ball Thrust Race and Balls....each	.64	.80	.96	1.28	1.61	2.41

JT signifies Jacobs Taper Hole.

Jacobs Hi-Torque Keyless Chucks

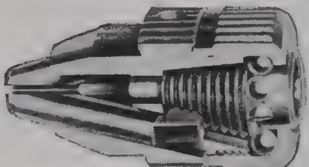
JACOBS HI-TORQUE
KEYLESS CHUCK

A heavy duty keyless industrial drill chuck. Rubber-flex collet has self-tightening action.

When ordering, specify part No. to identify correct mount.

No.	Part No.	Cap. Inches	Mount Taper	Mount Thread	Lgth. In.	Diam. In.	Wt. Lb.	Each
650	650-61	0—1/4	....	3/8—24	2 13/16	1 9/16	3/4	$10.70
650	650-64	0—1/4	....	1/2—20	2 13/16	1 9/16	3/4	10.70
650	650-01	0—1/4	1 JT	......	2 11/16	1 9/16	3/4	10.70
650	650-S2	0—1/4	2 Short JT	......	3 1/4	1 9/16	13/16	10.70
660	660-61	0—5/16	....	3/8—24	3 5/32	1 5/8	1 1/8	12.84
660	660-64	0—5/16	....	1/2—20	3 5/32	1 5/8	1 1/16	12.84
660	660-S2	0—5/16	2 Short JT	......	3 5/32	1 5/8	1 1/16	12.84
670	670-02	.040—7/16	2 JT	......	3 27/32	2 1/16	2 3/8	14.50
670	670-64	.040—7/16	....	1/2—20	3 15/16	2 1/16	2 3/8	14.50
670	670-68	.040—7/16	....	5/8—16	3 15/16	2 1/16	2 3/8	14.50
680	680-06	1/16—1/2	6 JT	......	3 2/32	2 1/16	2 3/8	16.50
680	680-64	1/16—1/2	....	1/2—20	3 15/16	2 1/16	2 3/8	16.50
680	680-68	1/16—1/2	....	5/8—16	3 15/16	2 1/16	2 3/8	16.50

Ettco-Emrick Keyless Ball Bearing Drill Chucks



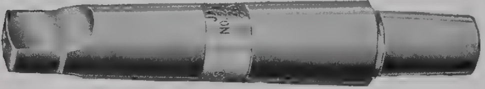
Keyless: drill placed in chuck by hand; slight twist grips drill; drill can be released by hand. Positive action. Self-centering. Heat-treated and ground to close limits.

All parts and wearing surfaces hardened to high Rockwell reading to resist wear.

Screw and jaws made from chrome-nickel steel. All chucks take 1/64 inch oversize.

No.	**10**	**30**	**40**	**50**
Each	**$6.50**	**8.00**	**10.50**	**12.50**
Capacity ... in.	0 to ¼	0 to ⅜	0 to ½	⅛ to ⅝
Std. Taper No.	30	2A	3A	3A
Weight ... pounds	½	1 3/16	2½	2½

Jacobs Taper Chuck Arbors



Tapered back chucks have a hole for mounting them directly on the machine spindle, or to arbors or adapters which in turn fit the machine spindle.

Specify style and No. of arbor; also model No. of chuck.

Morse Taper Shank

Taper No.	Each — Jacobs Chuck Taper No. 0	1	*2	3	4	5	6	E	33
0	$1.10	....	....	$1.10	....	....	....	....	$1.10
1	1.10	$1.10	$1.10	1.10	$1.50	....	$1.10	....	1.10
2	1.10	1.10	1.10	1.10	1.50	$3.00	1.10	$1.10	1.10
3	....	1.65	1.65	1.65	1.75	3.00	1.65	....	1.65
4	....	2.65	2.65	2.65	2.65	3.00	2.65	....	2.65
5	....	....	5.00	5.00	5.00	5.00	5.00	....	....
Brown and Sharpe Taper Shank									
7	....	....	$2.50	$2.50	....	....	$2.50	....	....
9	....	....	....	6.00	$6.50	....	6.00	....	....
10	....	....	....	7.25	7.25	....	....	....	....

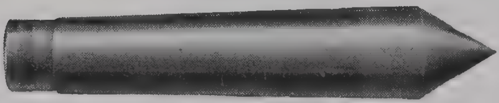
Morse Taper Threaded Arbors

No. 2, Morse Taper with ⅜"-24 Threads ... each	$4.50
No. 2, Morse Taper with ½"-20 Threads ... each	4.50
No. 2, Morse Taper with ⅝"-16 Threads ... each	4.50

*Will be supplied for use with chucks having a No. 2 Short Jacobs Taper mounting hole.

No. 890 Cleveland Lathe Centers

***High Speed* Steel**



Has hardened ***high speed*** steel point; accurately and smoothly ground all over. The normal included angle of the point is 60°. The straight section behind the point permits regrinding when worn or chipped. Can be operated at a high rate of speed without danger of burning.

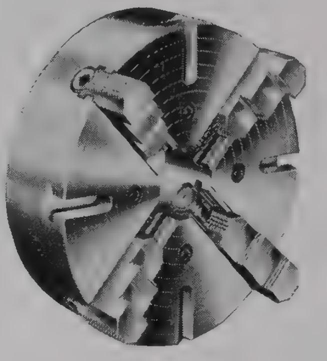
Taper Shank No.	0	1	2	3	4	5
No. 890 ... each	***$2.90***	***3.39***	***4.86***	***6.32***	***9.25***	***18.03***
Length Overall ... in.	3 3/32	3⅝	4 9/16	5¾	7 5/16	9 3/16
Length Body ... in.	½	11/16	1¼	1 7/16	2 5/16	2 11/16
Depth Shank ... in.	2 7/32	2 7/16	2 15/16	3 11/16	4⅝	5⅞

Use

Cleveland Cle-Forge High Speed Twist Drills.

Skinner Independent Lathe Chucks

4 Solid Reversible Jaws
Series 900 Semi-Steel Body
Series 1900 Forged-Steel Body



The Series 1900 steel chuck is particularly designed for heavy manufacturing and production work.

The Series 900 semi-steel chuck is one of the necessary chucks designed for tool rooms and all around machine shop practice.

Have steel jaws.

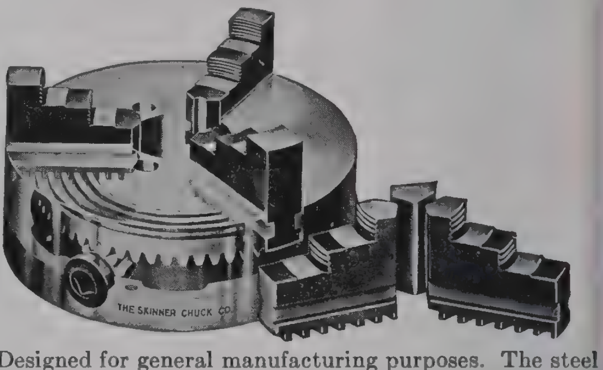
Suitable wrench and face plate bolts are furnished with all chucks.

Size In.	Semi-Steel Body No.	Each	Diam. Ctr. Hole In.	Approx. Ship. Wt. Lb.	Forged Steel Body No.	Each	Diam. Ctr. Hole In.	Approx. Ship. Wt. Lb.	Will Hold Approx. In.	Diam. Face Plate In.
4½	904	$82.00	1	11	....	......	...	...	4½	4
6	906	96.00	1½	19	....	......	...	...	6	5
8	908	112.00	1¾	36	1908	$184.00	1¾	39	8	5½
10	910	142.00	2	50	1910	216.00	2⅛	66	10	6
12	912	168.00	2¾	80	1912	274.00	3	100	12	6⅜
15	915	202.00	3	117	1915	336.00	3½	157	15	8
18	918	280.00	4	162	1918	424.00	4¼	234	18	10
21	921	352.00	4¼	210	1921	516.00	4¼	319	21	11
24	924	418.00	5	295	1924	612.00	5	520	24	13
28	928	532.00	5	365	*1928	832.00	5	502	28	15
32	932	760.00	6	575	*1932	1162.00	6	630	32	15
36	936	960.00	6	687	*1936	1480.00	6	708	36	18

*Cast steel body.

Skinner Universal Geared Scroll Lathe Chucks

Series: 3400 Semi-Steel Body; 3800 Forged Steel Body
3-Jaw, with Two Sets of Jaws:
Style No. 1, Common **Style No. 2, Reverse**



Designed for general manufacturing purposes. The steel body chuck is made of forged steel and is especially adapted for extra hard service.

A T-handle wrench and face plate bolts of suitable proportion are furnished with each chuck.

Rated Size In.	Semi-Steel Body No.	Each	Approx. Ship. Wt. Lb.	Steel Body No.	Each	Approx. Ship. Wt. Lb.	O.D. In.	Diam. Face-plate Recess In.	Diam. Ctr. Hole In.	Diam. Mtg. Plate Req. In.
3	....	....	4	3803	$88.00	4	3⅛	2⅜	⅝	3⅛
4	....	....	8	3804	100.00	8	4¼	3⅛	1	4¼
5	....	....	12	3805	108.00	12	5 1/16	4	1¼	5 1/16
6	....	....	21	3806	124.00	21	6 3/16	4½	1 9/16	6 3/16
8	3408	$154.00	50	3808	216.00	53	8¼	4¾	2	4¾
10	3410	184.00	74	3810	270.00	77	10	6⅜	2¾	6⅜
12	3412	226.00	94	3812	336.00	100	12	7	3	7
15	3415	322.00	150	3815	448.00	170	15	8	3¼	8
18	3418	570.00	233	3818	750.00	240	18	10	3½	10

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THE CLEVELAND TWIST DRILL CO.
MO-MAX HIGH SPEED U S A
THE CLEVELAND TWIST DRILL CO.

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On every job—no matter how difficult it may be—you'll appreciate the *extra* quality in these famous drills. They produce better work faster, at lower cost. No other drill gives you such outstanding *performance* and *economy.*

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Cleveland Cle-Forge Taper Shank Twist Drills

***High Speed* Steel**

No. 940, shanks regular, will be supplied unless otherwise specified.

Diam. Inches	Dec. Equiv. In.	No. 940, Shanks Regular — Each	Lgth. Flute In.	Lgth. Over-all In.	Shank Taper No.	No. 941, Shanks Smaller than Reg. — Each	Lgth. Flute In.	Lgth. Over-all In.	Shank Taper No.	No. 942, Shanks Larger than Reg. — Each	Lgth. Flute In.	Lgth. Over-all In.	Shank Taper No.
1/8	.1250	**$.90**	1 7/8	5 1/8	1	......	...	....	.	......	...	....	.
9/64	.1406	**.99**	2 1/8	5 3/8	1	......	...	....	.	......	...	....	.
5/32	.1562	**.99**	2 1/8	5 3/8	1	......	...	....	.	......	...	....	.
11/64	.1719	**1.12**	2 1/2	5 3/4	1	......	...	....	.	......	...	....	.
3/16	.1875	**1.12**	2 1/2	5 3/4	1	......	...	....	.	......	...	....	.
13/64	.2031	**1.22**	2 3/4	6	1	......	...	....	.	......	...	....	.
7/32	.2188	**1.22**	2 3/4	6	1	......	...	....	.	......	...	....	.
15/64	.2344	**1.26**	2 7/8	6 1/8	1	......	...	....	.	......	...	....	.
1/4	.2500	**1.26**	2 7/8	6 1/8	1	......	...	....	.	......	...	....	.
17/64	.2656	**1.35**	3	6 1/4	1	......	...	....	.	......	...	....	.
9/32	.2812	**1.35**	3	6 1/4	1	......	...	....	.	......	...	....	.
19/64	.2969	**1.45**	3 1/8	6 3/8	1	......	...	....	.	......	...	....	.
5/16	.3125	**1.45**	3 1/8	6 3/8	1	......	...	....	.	......	...	....	.
21/64	.3281	**1.53**	3 1/4	6 1/2	1	......	...	....	.	......	...	....	.
11/32	.3438	**1.53**	3 1/4	6 1/2	1	......	...	....	.	......	...	....	.
23/64	.3594	**1.72**	3 1/2	6 3/4	1	......	...	....	.	......	...	....	.
3/8	.3750	**1.72**	3 1/2	6 3/4	1	......	...	....	.	**$1.90**	3 1/2	7 3/8	2
25/64	.3906	**1.90**	3 5/8	7	1	......	...	....	.	**2.04**	3 5/8	7 1/2	2
13/32	.4062	**1.90**	3 5/8	7	1	......	...	....	.	**2.04**	3 5/8	7 1/2	2
27/64	.4219	**2.07**	3 7/8	7 1/4	1	......	...	....	.	**2.22**	3 7/8	7 3/4	2
7/16	.4375	**2.07**	3 7/8	7 1/4	1	......	...	....	.	**2.22**	3 7/8	7 3/4	2
29/64	.4531	**2.26**	4 1/8	7 1/2	1	......	...	....	.	**2.41**	4 1/8	8	2
15/32	.4688	**2.26**	4 1/8	7 1/2	1	...	...	....	.	**2.41**	4 1/8	8	2
31/64	.4844	**2.68**	4 3/8	8 1/4	2	**$2.50**	4 3/8	7 3/4	1	......	...	....	.
1/2	.5000	**2.68**	4 3/8	8 1/4	2	**2.50**	4 3/8	7 3/4	1	......	...	....	.
33/64	.5156	**2.96**	4 5/8	8 1/2	2	**2.77**	4 5/8	8	1	......	...	....	.
17/32	.5312	**2.96**	4 5/8	8 1/2	2	**2.77**	4 5/8	8	1	......	...	....	.
35/64	.5469	**3.40**	4 7/8	8 3/4	2	**3.19**	4 7/8	8 1/4	1	......	...	....	.
9/16	.5625	**3.40**	4 7/8	8 3/4	2	**3.19**	4 7/8	8 1/4	1	......	...	....	.
37/64	.5781	**3.64**	4 7/8	8 3/4	2	......	...	....	.	......	...	....	.
19/32	.5938	**3.64**	4 7/8	8 3/4	2	......	...	....	.	......	...	....	.
39/64	.6094	**3.87**	4 7/8	8 3/4	2	......	...	....	.	......	...	....	.
5/8	.6250	**3.87**	4 7/8	8 3/4	2	......	...	....	.	......	...	....	.
41/64	.6406	**4.32**	5 1/8	9	2	......	...	....	.	**4.69**	5 1/8	9 3/4	3
21/32	.6562	**4.32**	5 1/8	9	2	......	...	....	.	**4.69**	5 1/8	9 3/4	3
43/64	.6719	**4.78**	5 3/8	9 1/4	2	......	...	....	.	**5.20**	5 3/8	10	3
11/16	.6875	**4.78**	5 3/8	9 1/4	2	......	...	....	.	**5.20**	5 3/8	10	3
45/64	.7031	**5.24**	5 5/8	9 1/2	2	......	...	....	.	**5.65**	5 5/8	10 1/4	3
23/32	.7188	**5.24**	5 5/8	9 1/2	2	......	...	....	.	**5.65**	5 5/8	10 1/4	3
47/64	.7344	**5.71**	5 7/8	9 3/4	2	......	...	....	.	**6.15**	5 7/8	10 1/2	3
3/4	.7500	**5.71**	5 7/8	9 3/4	2	......	...	....	.	**6.15**	5 7/8	10 1/2	3
49/64	.7656	**5.94**	6	9 7/8	2	......	...	....	.	**6.39**	6	10 5/8	3
25/32	.7812	**5.94**	6	9 7/8	2	......	...	....	.	**6.39**	6	10 5/8	3
51/64	.7969	**6.62**	6 1/8	10 3/4	3	**6.15**	6 1/8	10	2	......	...	....	.
13/16	.8125	**6.62**	6 1/8	10 3/4	3	**6.15**	6 1/8	10	2	......	...	....	.
53/64	.8281	**6.99**	6 1/8	10 3/4	3	**6.51**	6 1/8	10	2	......	...	....	.
27/32	.8438	**6.99**	6 1/8	10 3/4	3	**6.51**	6 1/8	10	2	......	...	....	.
55/64	.8594	**7.34**	6 1/8	10 3/4	3	**6.84**	6 1/8	10	2	......	...	....	.
7/8	.8750	**7.34**	6 1/8	10 3/4	3	**6.84**	6 1/8	10	2	......	...	....	.
57/64	.8906	**7.71**	6 1/8	10 3/4	3	**7.17**	6 1/8	10	2	......	...	....	.
29/32	.9062	**7.71**	6 1/8	10 3/4	3	**7.17**	6 1/8	10	2	......	...	....	.
59/64	.9219	**8.08**	6 1/8	10 3/4	3	......	...	....	.	......	...	....	.
15/16	.9375	**8.08**	6 1/8	10 3/4	3	......	...	....	.	......	...	....	.
61/64	.9531	**8.80**	6 3/8	11	3	......	...	....	.	......	...	....	.
31/32	.9688	**8.80**	6 3/8	11	3	......	...	....	.	......	...	....	.
63/64	.9844	**9.37**	6 3/8	11	3	......	...	....	.	......	...	....	.
1	1.0000	**9.37**	6 3/8	11	3	......	...	....	.	**10.23**	6 3/8	12	4
1 1/64	1.0156	**10.05**	6 1/2	11 1/8	3	......	...	....	.	**10.98**	6 1/2	12 1/8	4
1 1/32	1.0312	**10.05**	6 1/2	11 1/8	3	......	...	....	.	**10.98**	6 1/2	12 1/8	4
1 3/64	1.0469	**10.74**	6 5/8	11 1/4	3	......	...	....	.	**11.70**	6 5/8	12 1/4	4
1 1/16	1.0625	**10.74**	6 5/8	11 1/4	3	......	...	....	.	**11.70**	6 5/8	12 1/4	4
1 5/64	1.0781	**12.10**	6 7/8	12 1/2	4	**11.14**	6 7/8	11 1/2	3	......	...	....	.
1 3/32	1.0938	**12.10**	6 7/8	12 1/2	4	**11.14**	6 7/8	11 1/2	3	......	...	....	.
1 7/64	1 1094	**13.03**	7 1/8	12 3/4	4	**12.02**	7 1/8	11 3/4	3	......	...	....	.
1 1/8	1.1250	**13.03**	7 1/8	12 3/4	4	**12.02**	7 1/8	11 3/4	3	......	...	....	.
1 9/64	1.1406	**13.72**	7 1/4	12 7/8	4	**12.67**	7 1/4	11 7/8	3	......	...	....	.
1 5/32	1.1562	**13.72**	7 1/4	12 7/8	4	**12.67**	7 1/4	11 7/8	3	......	...	....	.
1 11/64	1.1719	**14.40**	7 3/8	13	4	**13.29**	7 3/8	12	3	......	...	....	.
1 3/16	1.1875	**14.40**	7 3/8	13	4	**13.29**	7 3/8	12	3	......	...	....	.

These general purpose drills have American Standard taper shanks.

Cleveland Cle-Forge Taper Shank Twist Drills

***High Speed* Steel**

No. 942 drills, shanks larger than regular, are not made in sizes larger than 1 1/16 inches.

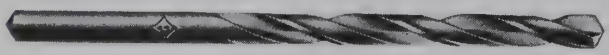
Diam. In.	Dec. Equiv. In.	No. 940, Shanks Regular — Each	Lgth. Flute In.	Length Over-all Inches	Shank Taper No.	No. 941, Shanks Smaller than Regular — Each	Lgth. Flute In.	Length Over-all Inches	Shank Taper No.
1 13/64	1.2031	**$15.08**	7 1/2	13 1/8	4	**$13.94**	7 1/2	12 1/8	3
1 7/32	1.2188	**15.08**	7 1/2	13 1/8	4	**13.94**	7 1/2	12 1/8	3
1 15/64	1.2344	**16.46**	7 7/8	13 1/2	4	**15.22**	7 7/8	12 1/2	3
1 1/4	1.2500	**16.46**	7 7/8	13 1/2	4	**15.22**	7 7/8	12 1/2	3
1 17/64	1.2656	**18.30**	8 1/2	14 1/8	4	......	....	....	.
1 9/32	1.2812	**18.30**	8 1/2	14 1/8	4	......	....	....	.
1 19/64	1.2969	**18.97**	8 5/8	14 1/4	4	......	....	....	.
1 5/16	1.3125	**18.97**	8 5/8	14 1/4	4	......	....	....	.
1 21/64	1.3281	**19.66**	8 3/4	14 3/8	4	......	....	....	.
1 11/32	1.3438	**19.66**	8 3/4	14 3/8	4	......	....	....	.
1 23/64	1.3594	**20.35**	8 7/8	14 1/2	4	......	....	....	.
1 3/8	1.3750	**20.35**	8 7/8	14 1/2	4	......	....	....	.
1 25/64	1.3906	**21.04**	9	14 5/8	4	......	....	....	.
1 13/32	1.4062	**21.04**	9	14 5/8	4	......	....	....	.
1 27/64	1.4219	**21.72**	9 1/8	14 3/4	4	......	....	....	.
1 7/16	1.4375	**21.72**	9 1/8	14 3/4	4	......	....	....	.
1 29/64	1.4531	**22.40**	9 1/4	14 7/8	4	......	....	....	.
1 15/32	1.4688	**22.40**	9 1/4	14 7/8	4	......	....	....	.
1 31/64	1.4844	**23.10**	9 3/8	15	4	......	....	....	.
1 1/2	1.5000	**23.10**	9 3/8	15	4	......	....	....	.
1 33/64	1.5156	**26.30**	9 3/8	16 3/8	5	**24.09**	9 3/8	15	4
1 17/32	1.5312	**26.30**	9 3/8	16 3/8	5	**24.09**	9 3/8	15	4
1 35/64	1.5469	**28.12**	9 5/8	16 5/8	5	**25.80**	9 5/8	15 1/4	4
1 9/16	1.5625	**28.12**	9 5/8	16 5/8	5	**25.80**	9 5/8	15 1/4	4
1 37/64	1.5781	**29.96**	9 7/8	16 7/8	5	**27.54**	9 7/8	15 1/2	4
1 19/32	1.5938	**29.96**	9 7/8	16 7/8	5	**27.54**	9 7/8	15 1/2	4
1 39/64	1.6094	**31.10**	10	17	5	**28.58**	10	15 5/8	4
1 5/8	1.6250	**31.10**	10	17	5	**28.58**	10	15 5/8	4
1 41/64	1.6406	**32.25**	10 1/8	17 1/8	5	**29.64**	10 1/8	15 3/4	4
1 21/32	1.6562	**32.25**	10 1/8	17 1/8	5	**29.64**	10 1/8	15 3/4	4
1 43/64	1.6719	**33.39**	10 1/8	17 1/8	5	**30.69**	10 1/8	15 3/4	4
1 11/16	1.6875	**33.39**	10 1/8	17 1/8	5	**30.69**	10 1/8	15 3/4	4
1 45/64	1.7031	**34.53**	10 1/8	17 1/8	5	**31.75**	10 1/8	15 3/4	4
1 23/32	1.7188	**34.53**	10 1/8	17 1/8	5	**31.75**	10 1/8	15 3/4	4
1 47/64	1.7344	**35.68**	10 1/8	17 1/8	5	**33.85**	10 3/8	16 1/4	4
1 3/4	1.7500	**35.68**	10 1/8	17 1/8	5	**33.85**	10 3/8	16 1/4	4
1 25/32	1.7812	**36.84**	10 1/8	17 1/8	5	**34.94**	10 3/8	16 1/4	4
1 13/16	1.8125	**37.96**	10 1/8	17 1/8	5	**36.06**	10 3/8	16 1/4	4
1 27/32	1.8438	**39.12**	10 1/8	17 1/8	5	**37.11**	10 3/8	16 1/4	4
1 7/8	1.8750	**41.18**	10 3/8	17 3/8	5	**39.12**	10 1/2	16 1/2	4
1 29/32	1.9062	**42.32**	10 3/8	17 3/8	5	**40.21**	10 1/2	16 1/2	4
1 15/16	1.9375	**43.46**	10 3/8	17 3/8	5	**41.59**	10 5/8	16 5/8	4
1 31/32	1.9688	**44.61**	10 3/8	17 3/8	5	**42.68**	10 5/8	16 5/8	4
2	2.0000	**45.75**	10 3/8	17 3/8	5	**43.78**	10 5/8	16 5/8	4
2 1/32	2.0312	**47.35**	10 3/8	17 3/8	5	......	....	....	.
2 1/16	2.0625	**48.94**	10 1/4	17 3/8	5	......	....	....	.
2 3/32	2.0938	**50.56**	10 1/4	17 3/8	5	......	....	....	.
2 1/8	2.1250	**52.16**	10 1/4	17 3/8	5	......	....	....	.
2 5/32	2.1562	**53.76**	10 1/4	17 3/8	5	......	....	....	.
2 3/16	2.1875	**55.36**	10 1/4	17 3/8	5	......	....	....	.
2 7/32	2.2188	**56.96**	10 1/8	17 3/8	5	......	....	....	.
2 1/4	2.2500	**58.57**	10 1/8	17 3/8	5	......	....	....	.
2 5/16	2.3125	**61.77**	10 1/8	17 3/8	5	......	....	....	.
2 3/8	2.3750	**64.98**	10 1/8	17 3/8	5	......	....	....	.
2 7/16	2.4375	**80.07**	11 1/4	18 3/4	5	......	....	....	.
2 1/2	2.5000	**83.29**	11 1/4	18 3/4	5	......	....	....	.
2 9/16	2.5625	**91.53**	11 7/8	19 1/2	5	......	....	....	.
2 5/8	2.6250	**96.10**	11 7/8	19 1/2	5	......	....	....	.
2 11/16	2.6875	**105.70**	12 3/4	20 3/8	5	......	....	....	.
2 3/4	2.7500	**110.29**	12 3/4	20 3/8	5	......	....	....	.
2 13/16	2.8125	**118.53**	13 3/8	21 1/8	5	......	....	....	.
2 7/8	2.8750	**123.57**	13 3/8	21 1/8	5	......	....	....	.
2 15/16	2.9375	**130.42**	14	21 3/4	5	......	....	....	.
3	3.0000	**137.30**	14	21 3/4	5	......	....	....	.
3 1/16	3.0625	**162.93**	14 5/8	24 1/2	6	**146.46**	14 1/4	22	5
3 1/8	3.1250	**173.00**	14 5/8	24 1/2	6	**155.60**	14 1/4	22	5
3 3/16	3.1875	**183.08**	14 5/8	24 1/2	6	**164.77**	14 1/4	22	5
3 1/4	3.2500	**197.71**	15 1/2	25 1/2	6	**178.50**	15 1/4	23	5
3 5/16	3.3125	**212.36**	15 1/2	25 1/2	6	**192.22**	15 1/4	23	5
3 3/8	3.3750	**227.92**	15 1/2	25 1/2	6	**205.95**	15 1/4	23	5
3 7/16	3.4375	**243.49**	15 1/2	25 1/2	6	**219.69**	15 1/4	23	5
3 1/2	3.5000	**262.71**	16 3/8	26 1/2	6	**238.00**	16 1/4	24	5

CLEVELAND TWIST DRILL PRODUCTS STOCKED IN FORT WAYNE ONLY

Cleveland Straight Shank Twist Drills

Wire Gage Sizes Short Series

No. 918 Cle-Forge *High Speed* (Black) **No. 108A Carbon** (Bright)



A general purpose drill designed to perform satisfactorily under many different normal conditions.

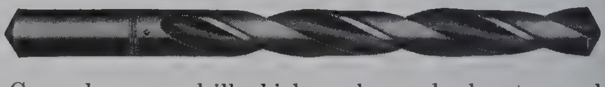
Recommended for short runs in a wide range of materials and set-ups, and can be used advantageously by varying the point angles, speeds and feeds.

Wire Gage No.	Decimal Diameter Inches	***High Speed*** Each	**Carbon** Each	Length Flute Inches	Length Overall Inches
1	.2280	$.52	$.22	2 5/8	3 7/8
2	.2210	.52	.22	2 5/8	3 7/8
3	.2130	.50	.22	2 1/2	3 3/4
4	.2090	.50	.22	2 1/2	3 3/4
5	.2055	.50	.22	2 1/2	3 3/4
6	.2040	.50	.21	2 1/2	3 3/4
7	.2010	.45	.21	2 7/16	3 5/8
8	.1990	.45	.21	2 7/16	3 5/8
9	.1960	.45	.21	2 7/16	3 5/8
10	.1935	.45	.21	2 7/16	3 5/8
11	.1910	.45	.19	2 5/16	3 1/2
12	.1890	.45	.19	2 5/16	3 1/2
13	.1850	.42	.19	2 5/16	3 1/2
14	.1820	.42	.19	2 3/16	3 3/8
15	.1800	.42	.19	2 3/16	3 3/8
16	.1770	.39	.16	2 3/16	3 3/8
17	.1730	.39	.16	2 3/16	3 3/8
18	.1695	.32	.16	2 1/8	3 1/4
19	.1660	.31	.16	2 1/8	3 1/4
20	.1610	.31	.16	2 1/8	3 1/4
21	.1590	.31	.15	2 1/8	3 1/4
22	.1570	.28	.15	2	3 1/8
23	.1540	.28	.15	2	3 1/8
24	.1520	.28	.15	2	3 1/8
25	.1495	.26	.15	1 7/8	3
26	.1470	.26	.15	1 7/8	3
27	.1440	.26	.15	1 7/8	3
28	.1405	.26	.15	1 3/4	2 7/8
29	.1360	.25	.15	1 3/4	2 7/8
30	.1285	.25	.15	1 5/8	2 3/4
31	.1200	.22	.14	1 5/8	2 3/4
32	.1160	.22	.14	1 5/8	2 3/4
33	.1130	.22	.14	1 1/2	2 5/8
34	.1110	.21	.14	1 1/2	2 5/8
35	.1100	.21	.14	1 1/2	2 5/8
36	.1065	.20	.14	1 7/16	2 1/2
37	.1040	.20	.14	1 7/16	2 1/2
38	.1015	.20	.14	1 7/16	2 1/2
39	.0995	.20	.14	1 3/8	2 3/8
40	.0980	.19	.14	1 3/8	2 3/8
41	.0960	.19	.14	1 3/8	2 3/8
42	.0935	.19	.14	1 1/4	2 1/4
43	.0890	.18	.14	1 1/4	2 1/4
44	.0860	.18	.14	1 1/8	2 1/8
45	.0820	.18	.14	1 1/8	2 1/8
46	.0810	.18	.13	1 1/8	2 1/8
47	.0785	.18	.13	1	2
48	.0760	.18	.13	1	2
49	.0730	.18	.13	1	2
50	.0700	.16	.13	1	2
51	.0670	.16	.13	1	2
52	.0635	.16	.13	7/8	1 7/8
53	.0595	.16	.13	7/8	1 7/8
54	.0550	.16	.13	7/8	1 7/8
55	.0520	.16	.13	7/8	1 7/8
56	.0465	.16	.13	3/4	1 3/4
57	.0430	.16	.13	3/4	1 3/4
58	.0420	.16	.13	11/16	1 5/8
59	.0410	.16	.13	11/16	1 5/8
60	.0400	.16	.13	11/16	1 5/8
61	.0390	.24	.21	11/16	1 5/8
62	.0380	.24	.21	5/8	1 1/2
63	.0370	.24	.21	5/8	1 1/2
64	.0360	.24	.21	5/8	1 1/2
65	.0350	.24	.21	5/8	1 1/2
66	.0330	.24	.21	1/2	1 3/8
67	.0320	.24	.21	1/2	1 3/8
68	.0310	.24	.21	1/2	1 3/8
69	.0292	.24	.21	1/2	1 3/8
70	.0280	.24	.21	3/8	1 1/4
71	.0260	.30	.26	3/8	1 1/4
72	.0250	.30	.26	5/16	1 1/8
73	.0240	.30	.26	5/16	1 1/8
74	.0225	.30	.26	1/4	1
75	.0210	.30	.26	1/4	1
76	.0200	.30	.26	3/16	7/8
77	.0180	.30	.26	3/16	7/8
78	.0160	.30	.26	3/16	7/8
79	.0145	.30	.26	3/16	3/4
80	.0135	.30	.26	3/16	3/4

No. 919 Cleveland Straight Shank Twist Drills

High Speed **Steel—Black**

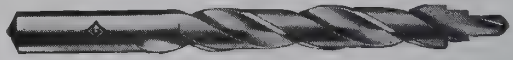
Letter Sizes Short Series



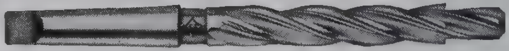
General purpose drill which can be used advantageously by varying the point angles and the speeds and feeds.

Diam.	Dec. Diam. Inches	Each	Length Flute Inches	Length Overall Inches	Diam.	Dec. Equiv. In.	Each	Length Flute Inches	Length Overall Inches
A	.234	$.52	2 5/8	3 7/8	N	.302	$.81	3 1/16	4 3/8
B	.238	.56	2 3/4	4	O	.316	.91	3 3/16	4 1/2
C	.242	.56	2 3/4	4	P	.323	.92	3 5/16	4 5/8
D	.246	.57	2 3/4	4	Q	.332	1.02	3 7/16	4 3/4
E	.250	.57	2 3/4	4	R	.339	1.02	3 7/16	4 3/4
F	.257	.64	2 7/8	4 1/8	S	.348	1.10	3 1/2	4 7/8
G	.261	.64	2 7/8	4 1/8	T	.358	1.10	3 1/2	4 7/8
H	.266	.68	2 7/8	4 1/8	U	.368	1.18	3 5/8	5
I	.272	.68	2 7/8	4 1/8	V	.377	1.27	3 5/8	5
J	.277	.68	2 7/8	4 1/8	W	.386	1.30	3 3/4	5 1/8
K	.281	.70	2 15/16	4 1/4	X	.397	1.36	3 3/4	5 1/8
L	.290	.75	2 15/16	4 1/4	Y	.404	1.36	3 7/8	5 1/4
M	.295	.78	3 1/16	4 3/8	Z	.413	1.48	3 7/8	5 1/4

Cleveland Step Drills and Sub-Land Drills



Step Drill



Sub-Land Drill

The step drill is used for most of the jobs requiring multiple-diameter drilling, because it can be made by grinding down and stepping an ordinary drill. Some thinning of the web is usually required. The drill may have two or more diameters, produced by grinding various successive steps on the lands of the drill. These steps are usually separated by square or angular cutting edges.

In resharpening drills the cutting shoulder as well as the point must be reground.

Also furnished in 3 or 4-fluted drill styles.

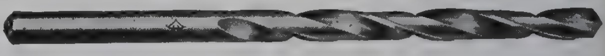
The sub-land performs the same functions as the step drill. Has two distinct lands running substantially the entire length of the flutes. The sub-land drill has two diameters that may be maintained constant throughout the life of the drill because in resharpening the cutting edges of the large diameter it is not necessary to touch the margins of the small diameter. Can be made in more than two diameters and are not restricted to two-fluted tools.

Cleveland Drills for Aircraft Body Work

High Speed **Steel**

No. 3917, Fraction Sizes **No. 3918, Wire Gage Sizes**

No. 3919, Letter Sizes



Designed for use in airplane manufacturing where a great number of holes must be drilled in non-ferrous materials.

Has a smooth finish that reduces to a minimum the possibility of material freezing or building up on the tool when in use.

Can be furnished specially made with short flutes and heavy construction for portable drilling of shallow holes in the special materials and stainless steels used in fabrication of airplanes and aircraft accessories.

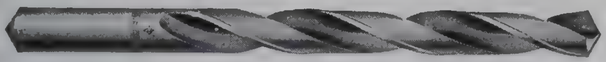
Overall and flute lengths are the same as for general purpose short series drills, and take same prices.

CLEVELAND TWIST DRILL PRODUCTS STOCKED IN FORT WAYNE ONLY

Cleveland Straight Shank Twist Drills

Fractional Sizes Short Series

No. 917 Cle-Forge *High Speed* (Black) **No. 108 Carbon** (Bright)



A general purpose drill designed to perform satisfactorily under many different normal conditions.

Recommended for short runs in a wide range of materials and set-ups, and can be used advantageously by varying the point angles, speeds and feeds.

Diam. Inches	Dec. Equiv. In.	***High Speed*** Each	Carbon Each	Lgth. Flute In.	Length Overall Inches	Diam. Inches	Dec. Equiv. In.	***High Speed*** Each	Carbon Each	Lgth. Flute In.	Length Overall Inches
1/64	.0156	***$.30***	$.26	3/16	3/4	17/64	.2656	***$.64***	$.27	2 7/8	4 1/8
1/32	.0312	***.24***	.21	1/2	1 3/8	9/32	.2812	***.70***	.30	2 15/16	4 1/4
3/64	.0469	***.16***	.13	3/4	1 3/4	19/64	.2969	***.78***	.32	3 1/16	4 3/8
1/16	.0625	***.16***	.13	7/8	1 7/8	5/16	.3125	***.84***	.34	3 3/16	4 1/2
5/64	.0781	***.18***	.13	1	2	21/64	.3281	***.92***	.38	3 5/16	4 5/8
3/32	.0938	***.19***	.14	1 1/4	2 1/4	11/32	.3438	***1.02***	.42	3 7/16	4 3/4
7/64	.1094	***.21***	.14	1 1/2	2 5/8	23/64	.3594	***1.10***	.45	3 1/2	4 7/8
1/8	.1250	***.25***	.15	1 5/8	2 3/4	3/8	.3750	***1.18***	.49	3 5/8	5
9/64	.1406	***.26***	.15	1 3/4	2 7/8	25/64	.3906	***1.30***	.52	3 3/4	5 1/8
5/32	.1562	***.28***	.15	2	3 1/8	13/32	.4062	***1.40***	.57	3 7/8	5 1/4
11/64	.1719	***.32***	.16	2 1/8	3 1/4	27/64	.4219	***1.52***	.63	3 15/16	5 3/8
3/16	.1875	***.42***	.19	2 5/16	3 1/2	7/16	.4375	***1.62***	.69	4 1/16	5 1/2
13/64	.2031	***.45***	.21	2 7/16	3 5/8	29/64	.4531	***1.74***	.75	4 3/16	5 5/8
7/32	.2188	***.50***	.22	2 1/2	3 3/4	15/32	.4688	***1.84***	.82	4 5/16	5 3/4
15/64	.2344	***.52***	.24	2 5/8	3 7/8	31/64	.4844	***1.98***	.91	4 3/8	5 7/8
1/4	.2500	***.57***	.25	2 3/4	4	1/2	.5000	***2.10***	.99	4 1/2	6

Cleveland Cle-Forge Screw Machine Twist Drills

***High Speed* Steel**

Short Length

Developed primarily for use in screw machines of all types where conditions require the use of a short, sturdy drill.

Eliminates the necessity of reworking regular length drills—cutting-off, thinning the webs, and repointing.

Made with short flutes and short overall length to obtain the maximum rigidity without sacrificing any of the cutting ability. This type of construction makes drill applicable not only in screw machine work, but also in portable drilling, sheet metal and body work. Other applications may be found in the drilling of the tougher and hard steels such as stainless, high manganese, and others, where short rigid drills are a basic tool requirement.

Furnished either right or left-hand.

Cleveland Heavy Duty or Cotter Pin Drills

***High Speed* Steel**

No. 4917 Fractional Sizes
No. 4918 Wire Gage Sizes
No. 4919 Letter Sizes

Designed for drilling cotter pin holes in bolts, steering knuckles, pins, and similar jobs, as well as cross holes in the heads of bolts.

Heavy construction resists exceptional strain put on the drill by this kind of work.

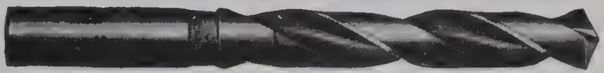
Cuts some of the hardest alloy steels, including the harder stainless steels.

Prices are the same as for ***high speed*** drills Nos. 917, 918 and 919.

No. 950 Cleveland Cle-Forge Straight Shank Twist Drills

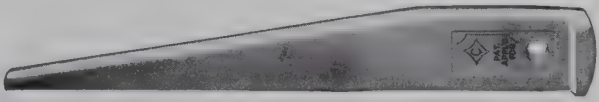
***High Speed* Steel—Black**

Long Series



Diam. Inches	Dec. Equiv. In.	Each	Lgth. Flute In.	Length Overall Inches	Diam. Inches	Dec. Equiv. In.	Each	Lgth. Flute In.	Length Overall Inches
1/8	.1250	***$.82***	2 3/4	5 1/8	53/64	.8281	***$6.51***	6 1/8	10
9/64	.1406	***.91***	3	5 3/8	27/32	.8438	***6.51***	6 1/8	10
5/32	.1562	***.91***	3	5 3/8	55/64	.8594	***6.84***	6 1/8	10
11/64	.1719	***1.03***	3 3/8	5 3/4	7/8	.8750	***6.84***	6 1/8	10
3/16	.1875	***1.03***	3 3/8	5 3/4	57/64	.8906	***7.17***	6 1/8	10
13/64	.2031	***1.11***	3 5/8	6	29/32	.9062	***7.17***	6 1/8	10
7/32	.2188	***1.11***	3 5/8	6	59/64	.9219	***8.08***	6 1/8	10 3/4
15/64	.2344	***1.15***	3 3/4	6 1/8	15/16	.9375	***8.08***	6 1/8	10 3/4
1/4	.2500	***1.15***	3 3/4	6 1/8	61/64	.9531	***8.80***	6 3/8	11
17/64	.2656	***1.23***	3 7/8	6 1/4	31/32	.9688	***8.80***	6 3/8	11
9/32	.2812	***1.23***	3 7/8	6 1/4	63/64	.9844	***9.37***	6 3/8	11
19/64	.2969	***1.32***	4	6 3/8	1	1.0000	***9.37***	6 3/8	11
5/16	.3125	***1.32***	4	6 3/8	1 1/64	1.0156	***10.05***	6 1/2	11 1/8
21/64	.3281	***1.40***	4 1/8	6 1/2	1 1/32	1.0312	***10.05***	6 1/2	11 1/8
11/32	.3438	***1.40***	4 1/8	6 1/2	1 3/64	1.0469	***10.74***	6 5/8	11 1/4
23/64	.3594	***1.57***	4 1/4	6 3/4	1 1/16	1.0625	***10.74***	6 5/8	11 1/4
3/8	.3750	***1.57***	4 1/4	6 3/4	1 5/64	1.0781	***11.14***	6 7/8	11 1/2
25/64	.3906	***1.74***	4 3/8	7	1 3/32	1.0938	***11.14***	6 7/8	11 1/2
13/32	.4062	***1.74***	4 3/8	7	1 7/64	1.1094	***12.02***	7 1/8	11 3/4
27/64	.4219	***1.89***	4 5/8	7 1/4	1 1/8	1.1250	***12.02***	7 1/8	11 3/4
7/16	.4375	***1.89***	4 5/8	7 1/4	1 9/64	1.1406	***12.67***	7 1/4	11 7/8
29/64	.4531	***2.06***	4 3/4	7 1/2	1 5/32	1.1562	***12.67***	7 1/4	11 7/8
15/32	.4688	***2.06***	4 3/4	7 1/2	1 11/64	1.1719	***13.29***	7 3/8	12
31/64	.4844	***2.28***	4 3/4	7 3/4	1 3/16	1.1875	***13.29***	7 3/8	12
1/2	.5000	***2.28***	4 3/4	7 3/4	1 13/64	1.2031	***13.94***	7 1/2	12 1/8
33/64	.5156	***2.77***	4 3/4	8	1 7/32	1.2188	***13.94***	7 1/2	12 1/8
17/32	.5312	***2.77***	4 3/4	8	1 15/64	1.2344	***15.22***	7 7/8	12 1/2
35/64	.5469	***3.19***	4 7/8	8 1/4	1 1/4	1.2500	***15.22***	7 7/8	12 1/2
9/16	.5625	***3.19***	4 7/8	8 1/4	1 9/32	1.2812	***18.30***	8 1/2	14 1/8
37/64	.5781	***3.64***	4 7/8	8 3/4	1 5/16	1.3125	***18.97***	8 5/8	14 1/4
19/32	.5938	***3.64***	4 7/8	8 3/4	1 11/32	1.3438	***19.66***	8 3/4	14 3/8
39/64	.6094	***3.87***	4 7/8	8 3/4	1 3/8	1.3750	***20.35***	8 7/8	14 1/2
5/8	.6250	***3.87***	4 7/8	8 3/4	1 13/32	1.4062	***21.04***	9	14 5/8
41/64	.6406	***4.32***	5 1/8	9	1 7/16	1.4375	***21.72***	9 1/8	14 3/4
21/32	.6562	***4.32***	5 1/8	9	1 15/32	1.4688	***22.40***	9 1/4	14 7/8
43/64	.6719	***4.78***	5 3/8	9 1/4	1 1/2	1.5000	***23.10***	9 3/8	15
11/16	.6875	***4.78***	5 3/8	9 1/4	1 9/16	1.5625	***25.80***	9 5/8	15 1/4
45/64	.7031	***5.24***	5 5/8	9 1/2	1 5/8	1.6250	***28.58***	9 7/8	15 5/8
23/32	.7188	***5.24***	5 5/8	9 1/2	1 11/16	1.6875	***30.69***	10	15 3/4
47/64	.7344	***5.71***	5 7/8	9 3/4	1 3/4	1.7500	***33.85***	10 1/2	16 1/4
3/4	.7500	***5.71***	5 7/8	9 3/4	1 13/16	1.8125	***36.06***	10 1/2	16 1/4
49/64	.7656	***5.94***	6	9 7/8	1 7/8	1.8750	***39.12***	10 3/4	16 1/2
25/32	.7812	***5.94***	6	9 7/8	1 15/16	1.9375	***41.59***	10 3/4	16 5/8
51/64	.7969	***6.15***	6 1/8	10	2	2.0000	***43.78***	10 3/4	16 5/8
13/16	.8125	***6.15***	6 1/8	10	.....	......	.....	....	. ..

No. 105 Cleveland Drill Drifts



Has shoulder, or flange, on head end which prevents it from flying through spindle slot. The added metal reduces damage to babbit hammer and provides more direct, solid force to end of drift. Mushrooming reduced.

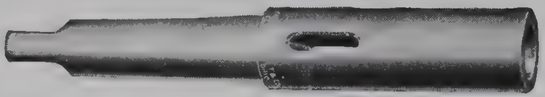
When ordering, always specify list number and size number.

Size No.	Description	Each
1	Fitting No. 1 Sockets and Sleeves	$.72
2	Fitting No. 2 Sockets and Sleeves	.84
3	Fitting No. 3 Sockets and Sleeves	.97
4	Fitting No. 4, 5 and 6 Sockets and Sleeves	1.21

CLEVELAND TWIST DRILL PRODUCTS STOCKED IN FORT WAYNE ONLY

No. 102 Cleveland Fitted Steel Socket

For Taper Shank Tools

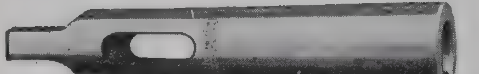


Used to adjust tools having larger or smaller taper shanks to the machine spindle nose taper hole.

Size No.	Each	Hole No.	Shank No.	Length Overall In.	Size No.	Each	Hole No.	Shank No.	Length Overall In.
1 to 2	$2.37	1	2	6¾	3 to 4	$3.75	3	4	10
1 to 3	2.96	1	3	7½	3 to 5	5.60	3	5	11½
1 to 4	3.75	1	4	8¾	4 to 3	5.60	4	3	10⅝
1 to 5	5.60	1	5	10	4 to 4	5.60	4	4	11⅝
2 to 2	2.96	2	2	7½	4 to 5	5.60	4	5	12½
2 to 3	2.96	2	3	8	4 to 6	17.16	4	6	16
2 to 4	3.75	2	4	9¼	5 to 4	14.12	5	4	13⅛
2 to 5	5.60	2	5	10¾	5 to 5	14.12	5	5	14½
3 to 2	3.75	3	2	8¼	5 to 6	17.16	5	6	16
3 to 3	3.75	3	3	9	.....	.....	..	..	...

No. 104 Cleveland Steel Sleeve or Shell Sockets

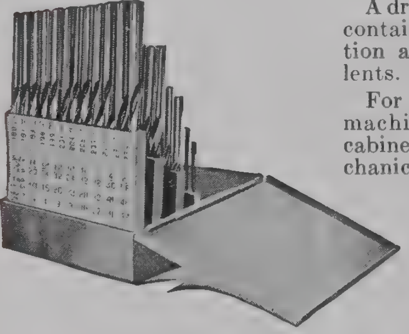
For Taper Shank Tools



Reduces hole size of machine spindle where drill shank is smaller than hole.

Size No.	Each	Description
1 to 2	$1.05	No. 1 Hole, Outside Fitting No. 2 Socket
1 to 3	1.38	No. 1 Hole, Outside Fitting No. 3 Socket
1 to 4	1.64	No. 1 Hole, Outside Fitting No. 4 Socket
1 to 5	4.09	No. 1 Hole, Outside Fitting No. 5 Socket
2 to 3	1.38	No. 2 Hole, Outside Fitting No. 3 Socket
2 to 4	1.64	No. 2 Hole, Outside Fitting No. 4 Socket
2 to 5	4.09	No. 2 Hole, Outside Fitting No. 5 Socket
3 to 4	1.64	No. 3 Hole, Outside Fitting No. 4 Socket
3 to 5	4.09	No. 3 Hole, Outside Fitting No. 5 Socket
4 to 5	4.09	No. 4 Hole, Outside Fitting No. 5 Socket
4 to 6	13.86	No. 4 Hole, Outside Fitting No. 6 Socket
5 to 6	13.86	No. 5 Hole, Outside Fitting No. 6 Socket

Huot Drill Indexes



A drill stand and indexed container with tap information and decimal equivalents. Made of steel.

For tool and die makers, machinists, electricians, cabinet makers, garage mechanics, manual training schools, vocational schools, aviators and anyone who uses small drills.

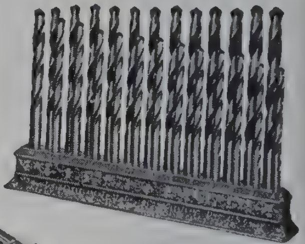
Prices do not include drills.

Description	Price
No. 13. For jobbers' or fractional drills $\frac{1}{16}$ in. to ¼ in. inclusive by 64ths. Size, $2\frac{1}{16}$x4⅝x⅝ inches....each	$1.10
No. 15. For jobbers' or fractional drills $\frac{1}{16}$ to ½ in. by 32nds decimal equivalents. Size, 4x7x1¼ in...each	2.50
No. 21. For jobbers' or fractional drills $\frac{1}{16}$ to ⅜ in. by 64ths. Decimal equivalents. Size, 4x6x1⅛ in..each	2.50
No. 29. For jobbers' or fractional drills $\frac{1}{16}$ to ½ inch inclusive by 64ths. Decimal equivalents, U.S.S. and S.A.E. tap information. Size, 4x7x1¾ inches...each	3.00
No. 16-B. For Morse taper shank drills $\frac{49}{64}$ to 1 inch by 64ths. Size, 6¼x14¼x3⅝ inches...........each	7.50
No. 16-A. For Morse taper shank drills $\frac{33}{64}$ to ¾ inch by 64ths. Size, 5½x12x2¾ inches.............each	7.00
No. 60. For wire gage drills Nos. 1 to 60 inclusive, decimal equivalents, machine screw tap information. Size, 3¼x4½x1 inches..................each	2.50
No. 72. For wire gage drills Nos. 1 to 60; also 12 taps 2-56 to 14-20. Size, 3¼x4½x$1\frac{5}{16}$ inches........each	3.60
No. 20. For wire gage drills Nos. 61 to 80. Size, 1½x2x$\frac{9}{32}$ inches.............................each	1.00
No. 26. For letter drills A to Z. Size, 4x7x1¾ in..each	3.00
No. 80. For wire gage drills No. 1 to 80 incl. dec. equiv. mach. screw tap info. Size 4¼x4½x$1\frac{5}{16}$ in.....each	3.60

Cleveland Twist Drill Sets

Short Series Straight Shank Drills

High Speed **or Carbon Steel**



Left—Set in Welded Sheet Steel Case with Plated Zinc Die Cast Stand Shown Above

Fraction Sizes

Sizes $\frac{1}{16}$ Inch to ½ Inch by 64ths

No.	With Holder per Set	Drills Only per Set	Type Steel	Holder
5	*$13.61	$11.11	Carbon	Maple Block or No. 429 Metal Container
50	14.61	11.11	Carbon	Metal Stand
51	17.38	11.11	Carbon	Metal Stand in Dustproof Metal Carrying Case
54	.....	***24.99***	**H.S.**	Metal Stand or No. 429 Metal Container
58	***29.90***	***24.99***	**H.S.**	Same as No. 51.

Sizes $\frac{1}{16}$ Inch to ½ Inch by 32nds

6	*$8.35	$5.85	Carbon	Maple Block or No. 415 Metal Container
86	.....	***13.07***	**H.S.**	No. 415 Metal Container

Sizes $\frac{1}{16}$ Inch to ⅜ Inch by 64ths

64	.....	$5.23	Carbon	No. 421 Metal Container
90	.....	***11.49***	**H.S.**	No. 421 Metal Container

Sizes $\frac{1}{16}$ Inch to ¼ Inch by 64ths

63	.....	$2.26	Carbon	No. 413 Metal Container
89	.....	***4.31***	**H.S.**	No. 413 Metal Container

Sizes $\frac{1}{16}$ Inch to $\frac{3}{16}$ Inch by 64ths

18	$1.66	.....	Carbon	Pocket Plastic Case
87	***2.80***	.....	**H.S.**	Pocket Plastic Case

Sizes $\frac{1}{16}$ Inch to ¼ Inch

22	$2.17	.....	Carbon	11 Drills in Pocket Plastic Case
56	***3.64***	.....	**H.S.**	11 Drills in Pocket Plastic Case

Sizes $\frac{1}{16}$ Inch to $\frac{9}{32}$ Inch by 32nds

26	$1.95	.....	Carbon	8 Drills in Pocket Plastic Case
57	***3.52***	.....	**H.S.**	8 Drills in Pocket Plastic Case

Wire Gage Sizes

Sizes No. 1 to No. 60

8	*$11.95	$9.45	Carbon	Maple Block or No. 460 Metal Container
52	15.72	9.45	Carbon	Metal Case
80	12.95	9.45	Carbon	Metal Stand
59	***22.26***	***16.88***	**H.S.**	Metal Case
84	.....	***16.88***	**H.S.**	Metal Stand or No. 460 Metal Container

Sizes No. 61 to No. 80

61	.....	$4.70	Carbon	No. 420 Metal Container
88	.....	***5.40***	**H.S.**	No. 420 Metal Container

Letter Sizes A to Z

55	****$25.66***	***$23.16***	**H.S.**	Maple Block
85	***27.94***	***23.16***	**H.S.**	Metal Case

Millimeter Sizes 1 Mm. to 6.5 Mm. by .1 Mm.

60	$13.14	$9.64	Carbon	On Metal Stand

Miscellaneous Drills

$\frac{1}{16}$ Inch to ¼ Inch by 32nds; $\frac{5}{16}$ Inch to ⅜ Inch by 16ths

No.	Per Set	Type	Style	Holder
13	$4.09	Carbon	Bit Stock	Plastic
13A	7.95	Carbon	Wood Bit for Brace	Wooden Box

¼ Inch to ½ Inch by 16ths with ¼-Inch Shank

14	$2.73	Carbon	Woodworking, 5 in Set	Wood Block

$\frac{5}{16}$ Inch to ½ Inch by 16ths with ¼-Inch Shank

97	***$5.28***	**H.S.**	Metalworking, 4 in set	Metal Case

Miscellaneous Equipment

Metal Stands

No.	Each	No.	Each	For Specific Sets Nos.	Each
413	$.70	426	$1.92	50, 54, 60, 80, 84	$3.50
415	1.64	429	2.10	51, 52, 58, 59, 85	4.18
420	.52	460	1.75		
421	1.64	...	....		

When ordering, stands or cases, specify drill set.

Item	Price
Maple Block Only.................................each	$2.50
Cases for Set Nos. 51, 52, 58, 59, 85............each	2.09

*With stand only.

CLEVELAND TWIST DRILL PRODUCTS STOCKED IN FORT WAYNE ONLY

Cleveland **Carbide Tipped** Short Series Drills

Straight Shank

High Speed Steel

Carbide tips brazed in hardened high speed steel body. ip has high abrasive resistance and holds a keen edge nder high temperatures.

For drilling abrasive materials of low tensile strength, ich as non-ferrous materials, plastics, hard rubber, some asonry, glass, etc. Not recommended for steel.

No. 724, Fraction Sizes

iam. .	Each	Dec. Equiv. In.	Lgth. Flute In.	Lgth. Over-all, In.	Diam. In.	Each	Dec. Equiv. In.	Lgth. Flute In.	Lgth. Over-all, In.
3	**$3.09**	.1250	1 5/8	2 3/4	21/64	**$5.51**	.3281	3 5/16	4 5/8
54	**3.31**	.1406	1 3/4	2 7/8	11/32	**5.51**	.3438	3 7/16	4 3/4
32	**3.31**	.1562	2	3 1/8	23/64	**5.96**	.3594	3 1/2	4 7/8
/64	**3.54**	.1719	2 1/8	3 1/4	3/8	**5.96**	.3750	3 5/8	5
16	**3.54**	.1875	2 5/16	3 1/2	25/64	**6.41**	.3906	3 3/4	5 1/8
/64	**3.76**	.2031	2 7/16	3 5/8	13/32	**6.41**	.4062	3 7/8	5 1/4
32	**3.76**	.2188	2 1/2	3 3/4	27/64	**7.08**	.4219	3 15/16	5 3/8
/64	**4.16**	.2344	2 5/8	3 7/8	7/16	**7.08**	.4375	4 1/16	5 1/2
	4.16	.2500	2 3/4	4	29/64	**7.93**	.4531	4 3/16	5 5/8
/64	**4.83**	.2656	2 7/8	4 1/8	15/32	**7.93**	.4688	4 5/16	5 3/4
32	**4.83**	.2812	2 15/16	4 1/4	31/64	**8.83**	.4844	4 3/8	5 7/8
/64	**5.28**	.2969	3 1/16	4 3/8	1/2	**8.83**	.5000	4 1/2	6
16	**5.28**	.3125	3 3/16	4 1/2	....	.....	.....	...	...

No. 725, Wire Gage Sizes

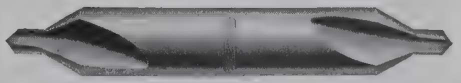
ire ge .	Each	Dec. Diam. In.	Lgth. Flute In.	Lgth. Over-all, In.	Wire Gage No.	Each	Dec. Diam. In.	Lgth. Flute In.	Lgth. Over-all, In.
	$3.93	.2280	2 5/8	3 7/8	17	**$3.54**	.1730	2 3/16	3 3/8
	3.93	.2210	2 5/8	3 7/8	18	**3.54**	.1695	2 1/8	3 1/4
	3.71	.2130	2 1/2	3 3/4	19	**3.54**	.1660	2 1/8	3 1/4
	3.71	.2090	2 1/2	3 3/4	20	**3.54**	.1610	2 1/8	3 1/4
	3.71	.2055	2 1/2	3 3/4	21	**3.54**	.1590	2 1/8	3 1/4
	3.71	.2040	2 1/2	3 3/4	22	**3.54**	.1570	2	3 1/8
	3.71	.2010	2 7/16	3 5/8	23	**3.31**	.1540	2	3 1/8
	3.71	.1990	2 7/16	3 5/8	24	**3.31**	.1520	2	3 1/8
	3.71	.1960	2 7/16	3 5/8	25	**3.31**	.1495	1 7/8	3
	3.71	.1935	2 7/16	3 5/8	26	**3.31**	.1470	1 7/8	3
	3.71	.1910	2 5/16	3 1/2	27	**3.31**	.1440	1 7/8	3
	3.71	.1890	2 5/16	3 1/2	28	**3.31**	.1405	1 3/4	2 7/8
	3.54	.1850	2 5/16	3 1/2	29	**3.31**	.1360	1 3/4	2 7/8
	3.54	.1820	2 3/16	3 3/8	30	**3.09**	.1285	1 5/8	2 3/4
	3.54	.1800	2 3/16	3 3/8	31	**2.95**	.1200	1 5/8	2 3/4
	3.54	.1770	2 3/16	3 3/8	..	.....	.....	...	...

No. 723, Letter Sizes

am.	Each	Dec. Diam. In.	Lgth. Flute In.	Lgth. Over-all, In.	Diam.	Each	Dec. Diam. In.	Lgth. Flute In.	Lgth. Over-all, In.
	$4.16	.234	2 5/8	3 7/8	N	**$5.28**	.302	3 1/16	4 3/8
	4.16	.238	2 3/4	4	O	**5.28**	.316	3 3/16	4 1/2
	4.16	.242	2 3/4	4	P	**5.51**	.323	3 5/16	4 5/8
	4.16	.246	2 3/4	4	Q	**5.51**	.332	3 7/16	4 3/4
	4.16	.250	2 3/4	4	R	**5.51**	.339	3 7/16	4 3/4
	4.83	.257	2 7/8	4 1/8	S	**5.96**	.348	3 1/2	4 7/8
	4.83	.261	2 7/8	4 1/8	T	**5.96**	.358	3 1/2	4 7/8
	4.83	.266	2 7/8	4 1/8	U	**5.96**	.368	3 5/8	5
	4.83	.272	2 7/8	4 1/8	V	**5.96**	.377	3 5/8	5
	4.83	.277	2 7/8	4 1/8	W	**6.41**	.386	3 3/4	5 1/8
	4.83	.281	2 15/16	4 1/4	X	**6.41**	.397	3 3/4	5 1/8
	4.83	.290	2 15/16	4 1/4	Y	**6.41**	.404	3 7/8	5 1/4
	5.28	.295	3 1/16	4 3/8	Z	**7.08**	.413	3 7/8	5 1/4

No. 998 Cleveland Combined Drills and Countersinks

High Speed Steel—Plain Type



Drill ends both same diameter; included angle of 60°. Special sizes or angle on order; prices on application.

No. New	No. Old	Each	Diam. Body In.	Diam. Drill In.	Lgth. Over-all In.	No. New	No. Old	Each	Diam. Body In.	Diam. Drill In.	Lgth. Over-all In.
1	A-1	***$.98***	1/8	3/64	1 1/4	**6**	J-1	***$2.24***	1/2	7/32	3
2	C-2	***.98***	3/16	5/64	1 7/8	**6**	J-2	***2.24***	1/2	7/32	3
3	D-1	***.98***	1/4	7/64	2	**7**	M-1	***3.00***	5/8	1/4	3 1/4
4	E-1	***.98***	5/16	1/8	2 1/8	**7**	M-2	***3.00***	5/8	1/4	3 1/4
4	E-2	***.98***	5/16	1/8	2 1/8	**8**	N-1	***4.00***	3/4	5/16	3 1/2
5	F-1	***1.48***	7/16	3/16	2 3/4	**8**	N-2	***4.00***	3/4	5/16	3 1/2
5	F-2	***1.48***	7/16	3/16	2 3/4	.	....	....	..	..	...

No. 610 Cleveland Center Reamers

High Speed Steel

Designed for countersinking holes for centers, flat head screws and rivets. Has radial or eccentric clearance.

Regularly furnished with included angles of 60°, 82°, 90°, 100°, 110°, and 120°.

When ordering, included angle of tool must be specified; also give diameter of both shank and body.

Diameter Body.....inches	**1/4**	**3/8**	**1/2**	**5/8**	**3/4**
No. **610**..............each	***$.99***	***1.14***	***1.39***	***1.75***	***2.14***
Diameter Shank....inches	3/16	1/4	3/8	3/8	1/2

No. 142 Repairman's Taper Reamers

An ideal reamer for practically every type of reaming job where quick work is required. Eliminates the necessity and expense of several different sizes.

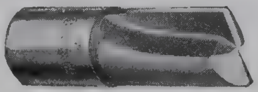
Used by electricians, telephone linemen, auto repairmen, plumbers, carpenters, machinists, blacksmiths and others for increasing the size of holes in all materials.

Packed 1 in a carton.

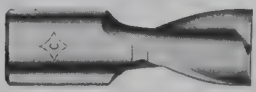
No......................................	**1**	**2**
No. **142**................................each	**$1.80**	**2.70**
Diameter at Large End............inches	1/2	1
Diameter at Point..................inches	1/8	3/8
Length Flute.........................inches	3 1/2	4 1/2
Length Overall......................inches	5 1/2	6 1/2

Cleveland Two-Lipped Slotting End Mills

High Speed Steel—With Straight Shanks



No. 680 Straight Flute



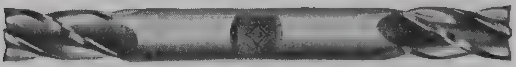
No. 681 Spiral Flute

Furnished as regular with either right or left-hand cut, and straight or spiral flutes. When ordering, be sure to specify whether right or left-hand cut is wanted.

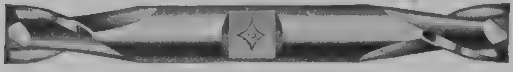
Diameter Inches	Each	Length Cut Inches	Length Overall Inches	Diameter Inches	Each	Length Cut Inches	Length Overall Inches
1/4	***$2.29***	3/8	1 7/16	**1/2**	***$3.38***	3/4	2 1/16
5/16	***2.54***	15/32	1 9/16	**5/8**	***3.99***	15/16	2 5/16
3/8	***2.66***	9/16	1 5/8	**3/4**	***4.35***	1 1/8	2 1/2
7/16	***2.90***	21/32	2	..	....	...	...

Cleveland Double-End End Mills

High Speed Steel



No. 682 4-Lipped



No. 684 2-Lipped

No. 682 designed for milling of slots and pockets.

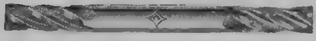
No. 684 designed for milling keyways, slots, pockets and other general-purpose operations. Will drill also.

Right-hand mills have right-hand spiral flutes, and left-hand mills have left-hand spiral flutes. Furnished either right or left-hand cut. Shanks flatted for set-screw. Sizes and dimensions not listed are special.

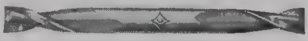
	No. 682 4-Lipped				No. 684 2-Lipped			
Diameter Mill Inches	Each	Lgth. Overall Inches	Lgth. Cut Inches	Diam. Shank Inches	Each	Lgth. Overall Inches	Lgth Cut Inches	Diam. Shank In.
1/8	**$3.19**	3 1/16	3/8	3/8	**$3.19**	3 1/16	3/8	3/8
5/32	**3.19**	3 1/8	7/16	3/8	**3.19**	3 1/8	7/16	3/8
3/16	**3.19**	3 1/4	1/2	3/8	**3.19**	3 1/8	7/16	3/8
7/32	**3.19**	3 1/4	9/16	3/8	**3.19**	3 1/8	1/2	3/8
1/4	**3.19**	3 3/8	5/8	3/8	**3.19**	3 1/8	1/2	3/8
9/32	**3.19**	3 3/8	11/16	3/8	**3.19**	3 1/8	9/16	3/8
5/16	**3.19**	3 1/2	3/4	3/8	**3.19**	3 1/8	9/16	3/8
11/32	**3.19**	3 1/2	3/4	3/8	**3.19**	3 1/8	9/16	3/8
3/8	**3.19**	3 1/2	3/4	3/8	**3.19**	3 1/8	9/16	3/8
13/32	**4.18**	4 1/8	1	1/2	**4.18**	3 3/4	13/16	1/2
7/16	**4.18**	4 1/8	1	1/2	**4.18**	3 3/4	13/16	1/2
15/32	**4.18**	4 1/8	1	1/2	**4.18**	3 3/4	13/16	1/2
1/2	**4.18**	4 1/8	1	1/2	**4.18**	3 3/4	13/16	1/2
9/16	**5.28**	5	1 3/8	5/8	**5.28**	4 1/2	1 1/8	5/8
5/8	**5.28**	5	1 3/8	5/8	**5.28**	4 1/2	1 1/8	5/8
11/16	**6.60**	5 5/8	1 5/8	3/4	**6.60**	5	1 5/16	3/4
3/4	**6.60**	5 5/8	1 5/8	3/4	**6.60**	5	1 5/16	3/4
13/16	**8.19**	6 1/8	1 7/8	7/8	**8.19**	5 1/2	1 9/16	7/8
7/8	**8.19**	6 1/8	1 7/8	7/8	**8.19**	5 1/2	1 9/16	7/8
15/16	**9.68**	6 3/8	1 7/8	1	**9.68**	5 7/8	1 5/8	1
1	**9.68**	6 3/8	1 7/8	1	**9.68**	5 7/8	1 5/8	1

Cleveland Small Diameter Double-End End Mills

High Speed Steel



No. 686 4-Lipped



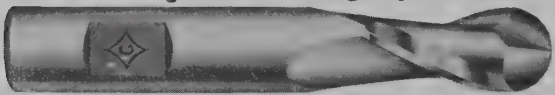
No. 687 2-Lipped

Designed to be operated at the higher speeds generally required for small-diameter end mills. Regularly furnished in the double-end style, right-hand spiral, right-hand **cut.** The shanks are not flatted.

	No 686, 4-Lipped					No. 687, 2-Lipped			
Diam. In.	Each	Lgth. Overall In.	Lgth Cut In.	Diam. Shank In.	No. of Flutes	Each	Lgth. Overall In.	Lgth. Cut In.	Dia.n. Shank In.
1/16	....	...	..	.	.	**$2.58**	2 1/4	7/32	3/16
3/32	**$2.58**	2 1/4	5/16	3/16	4	**2.58**	2 1/4	5/16	3/16
1/8	**2.58**	2 1/4	3/8	3/16	4	**2.58**	2 1/4	3/8	3/16
5/32	**2.58**	2 1/4	7/16	3/16	4	**2.58**	2 1/4	7/16	3/16
3/16	**2.58**	2 1/4	1/2	3/16	4	**2.58**	2 1/4	1/2	3/16

No. 690 Cleveland 2-Lipped Ball-End End Mills

With Straight Shanks—*High Speed* Steel



Used for milling radius bottom slots, fillets, rounding bottoms of holes, etc. End mills are standard with right-hand cut and spiral flutes; flatted on the shank for the holder set-screw. Diameters 7/8 inch and larger have an additional flat on the end of shank to fit holder.

Diam. In.	Each	Length Overall Inches	Length Cut In.	Diam. Shank In.
1/8	**$2.75**	2 5/16	3/8	3/8
3/16	**2.75**	2 3/8	1/2	3/8
1/4	**2.75**	2 7/16	5/8	3/8
5/16	**3.02**	2 1/2	3/4	3/8
3/8	**3.02**	2 1/2	3/4	3/8
7/16	**3.79**	3	1	1/2
1/2	**3.79**	3	1	1/2
5/8	**4.89**	3 1/2	1 3/8	5/8
3/4	**$5.83**	3 7/8	1 5/8	3/4
7/8	**7.26**	4 1/4	2	7/8
1	**8.80**	4 3/4	2 1/4	1
1 1/8	**10.01**	4 3/4	2 1/4	1
1 1/4	**11.66**	5 1/16	2 1/2	1 1/4
1 3/8	**12.76**	5 1/16	2 1/2	1 1/4
1 1/2	**14.24**	5 1/16	2 1/2	1 1/4
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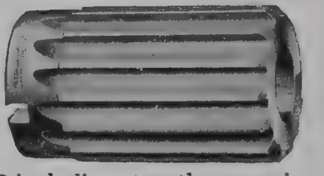
No. 620 Cleveland Straight Fluted Shell Reamers

High Speed Steel

Eccentric Fluted



Shell reamers have taper holes, 1/8-inch taper per foot, the diameter given being at the large end.

Several sizes of reamers are used on one size of arbor. Only 7 arbors are required to fit all reamers from 3/4 to 3-inch diameter, the range in which this tool is made.

Reamers for brass or bronze require special clearances and are so furnished on request.

All sizes not listed are special and subject to special prices.

Diam. In.	***High Speed*** Each	Size Hole In.	Lgth. Over-all In.	Fitting Arbor No.
3/4	**$7.41**	3/8	2 1/4	4
13/16	**7.71**	1/2	2 1/2	5
7/8	**8.19**	1/2	2 1/2	5
15/16	**8.67**	1/2	2 1/2	5
1	**9.15**	1/2	2 1/2	5
1 1/16	**9.64**	5/8	2 3/4	6
1 1/8	**10.11**	5/8	2 3/4	6
1 3/16	**10.60**	5/8	2 3/4	6
1 1/4	**11.08**	5/8	2 3/4	6
1 5/16	**11.56**	3/4	3	7
1 3/8	**12.54**	3/4	3	7
1 7/16	**13.51**	3/4	3	7
1 1/2	**14.47**	3/4	3	7
1 9/16	**15.91**	3/4	3	7
1 5/8	**17.36**	3/4	3	7
1 11/16	**18.80**	1	3 1/2	8
1 3/4	**20.26**	1	3 1/2	8
1 13/16	**21.70**	1	3 1/2	8
1 7/8	**23.16**	1	3 1/2	8
1 15/16	**24.60**	1	3 1/2	8
2	**$26.06**	1	3 1/2	8
2 1/16	**27.50**	1 1/4	3 3/4	9
2 1/8	**28.95**	1 1/4	3 3/4	9
2 3/16	**30.39**	1 1/4	3 3/4	9
2 1/4	**31.84**	1 1/4	3 3/4	9
2 5/16	**33.30**	1 1/4	3 3/4	9
2 3/8	**34.75**	1 1/4	3 3/4	9
2 7/16	**36.19**	1 1/4	3 3/4	9
2 1/2	**37.64**	1 1/4	3 3/4	9
2 9/16	**39.57**	1 1/2	4	10
2 5/8	**41.98**	1 1/2	4	10
2 11/16	**44.40**	1 1/2	4	10
2 3/4	**46.81**	1 1/2	4	10
2 13/16	**49.23**	1 1/2	4	10
2 7/8	**52.14**	1 1/2	4	10
2 15/16	**55.02**	1 1/2	4	10
3	**57.92**	1 1/2	4	10
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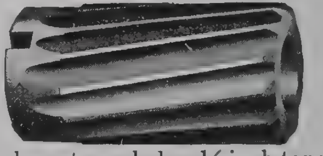
...	.....	...	...	..
...	.....	...	...	..

No. 646 Cleveland Spiral Fluted Shell Reamers

High Speed Steel

Eccentric Flutes



Shell reamers have taper holes, 1/8-inch taper per foot, the diameter given being at the large end

Several sizes of reamers are used on one size of arbor Only 7 arbors are required to fit all reamers from 3/4 to 3-inch diameter, the range in which this tool is made

Reamers for brass or bronze require special clearances and are so furnished on request

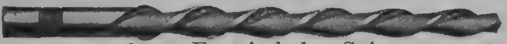
All sizes not listed are special and subject to special prices.

Diam. In.	***High Speed*** Each	Size Hole In.	Lgth. Over-all In.	Fitting Arbor No.
3/4	**$8.19**	3/8	2 1/4	4
13/16	**8.48**	1/2	2 1/2	5
7/8	**9.04**	1/2	2 1/2	5
15/16	**9.54**	1/2	2 1/2	5
1	**10.11**	1/2	2 1/2	5
1 1/16	**10.60**	5/8	2 3/4	6
1 1/8	**11.18**	5/8	2 3/4	6
1 3/16	**11.66**	5/8	2 3/4	6
1 1/4	**12.24**	5/8	2 3/4	6
1 5/16	**12.73**	3/4	3	7
1 3/8	**13.78**	3/4	3	7
1 7/16	**14.84**	3/4	3	7
1 1/2	**15.91**	3/4	3	7
1 9/16	**17.55**	3/4	3	7
1 5/8	**19.09**	3/4	3	7
1 11/16	**20.74**	1	3 1/2	8
1 3/4	**22.28**	1	3 1/2	8
1 13/16	**23.92**	1	3 1/2	8
1 7/8	**25.47**	1	3 1/2	8
1 15/16	**$27.10**	1	3 1/2	8
2	**28.65**	1	3 1/2	8
2 1/16	**30.30**	1 1/4	3 3/4	9
2 1/8	**31.84**	1 1/4	3 3/4	9
2 3/16	**33.48**	1 1/4	3 3/4	9
2 1/4	**35.04**	1 1/4	3 3/4	9
2 5/16	**36.67**	1 1/4	3 3/4	9
2 3/8	**38.22**	1 1/4	3 3/4	9
2 7/16	**39.87**	1 1/4	3 3/4	9
2 1/2	**41.40**	1 1/4	3 3/4	9
2 9/16	**43.52**	1 1/2	4	10
2 5/8	**46.23**	1 1/2	4	10
2 11/16	**48.85**	1 1/2	4	10
2 3/4	**51.54**	1 1/2	4	10
2 13/16	**54.15**	1 1/2	4	10
2 7/8	**57.33**	1 1/2	4	10
2 15/16	**60.51**	1 1/2	4	10
3	**63.70**	1 1/2	4	10
......	......	...	...	..

Cleveland Aircraft Cutting Tools
***High Speed* Steel**

Taper Pin Reamers
Taper ¼-Inch per Foot

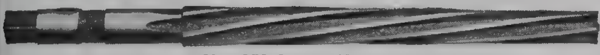
No. 650 Spirex Helical Fluted Machine Taper Pin Reamers



For pin holes. Spirex prevents chips packing in flutes, reducing breakage. Positive power feed recommended.

Standard Taper Pin Reamers

No. 657 Straight Fluted



No. 659 Spiral Fluted

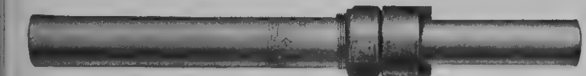
For reaming holes in which standard taper pin fits. traight flute, left-hand spiral for hand reaming. Best results f hole reamed is drilled a few thousandths smaller than mall diameter of finish-reamed hole.

ize o.	No. 650 Each	No. 657 Each	N9. 659 Each	—Diam. End, In.— Large	Small	Diam. Shank In.	Lgth. O/A In.	Lgth. Flute In.
-0	**$3.60**	**$3.14**	**$3.45**	.0666	.0497	5/64	1 13/16	13/16
-0	**3.26**	**3.14**	**3.45**	.0806	.0611	3/32	1 15/16	15/16
-0	**3.26**	**2.91**	**3.22**	.0966	.0719	7/64	2 3/16	1 3/16
-0	**3.26**	**2.91**	**3.22**	.1142	.0869	1/8	2 5/16	1 5/16
-0	**2.94**	**2.91**	**3.22**	.1302	.1029	9/64	2 5/16	1 5/16
-0	**2.94**	**2.70**	**2.96**	.1462	.1137	5/32	2 9/16	1 9/16
0	**2.94**	**2.50**	**2.77**	.1638	.1287	11/64	2 15/16	1 11/16
1	**3.26**	**2.60**	**2.86**	.1798	.1447	3/16	2 15/16	1 11/16
2	**3.60**	**2.70**	**2.96**	.2008	.1605	13/64	3 3/16	1 15/16
3	**3.92**	**2.70**	**2.96**	.2294	.1813	15/64	3 11/16	2 5/16
4	**4.57**	**2.91**	**3.22**	.2604	.2071	17/64	4 1/16	2 9/16
5	**4.90**	**3.14**	**3.45**	.2994	.2409	5/16	4 5/16	2 13/16
6	**5.55**	**3.81**	**4.22**	.354	.2773	23/64	5 7/16	3 11/16
7	**6.55**	**4.71**	**5.22**	.422	.3297	13/32	6 5/16	4 7/16
8	**7.52**	**6.07**	**6.69**	.505	.3971	7/16	7 3/16	5 3/16
9	**8.18**	**7.41**	**8.18**	.6066	.4805	9/16	8 5/16	6 1/16
10	**9.81**	**8.10**	**8.90**	.7216	.5799	5/8	9 5/16	6 13/16

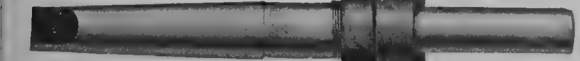
Special Drills

We would be pleased to submit estimates or have our factory expert call to assist in solving any problems that you may have in connection with any drilling operation.

Cleveland Arbors
For No. 719 Shell Reamers



No. 78, Straight Shank

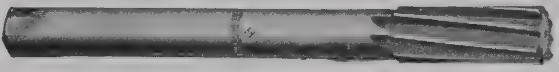


No. 79, Taper Shank

Provided with a sliding collar which can be forced forard by a turn or two of the adjusting nut which bears on it, uickly releasing the shell tool, although tool may have beome jammed on arbor, without removing arbor from maine.

ze o.	No. 78 Each	No. 78 Diam. Shank, In.	No. 79 Each	No. 79 Shank Taper No.	Fitting Sizes Inches	Length Over-all, In.
4	**$6.34**	1/2	**$7.67**	2	21/32 to 25/32	9
5	**7.04**	5/8	**8.46**	2	13/16 to 1 1/32	9 1/2
6	**7.75**	3/4	**9.31**	3	1 1/16 to 1 9/32	10
7	**8.46**	7/8	**10.10**	3	1 5/16 to 1 21/32	11
8	**9.40**	1 1/8	**11.28**	4	1 11/16 to 2	12
9	**10.57**	1 3/8	**12.69**	4	2 1/16 to 2 1/2	13
0	**12.37**	1 5/8	**14.81**	5	2 9/16 to 3	14

No. 611 Spiral Fluted Machine Reamers
Straight Shank—Right Hand Spiral—Right Hand Cut

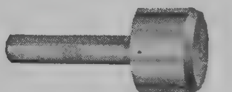


For use in materials usually difficult to ream. Gives free cutting action, for smooth, accurate holes.

Straight shank reamers are held in collets, split bushings, or by means of a set-screw.

Diam. In.	Each	Diam. Shank In.	Lgth. O/A In.	Lgth. Flute In.	Diam. In.	Each	Diam. Shank In.	Lgth. O/A In.	Lgth. Flute In.
1/16	***$1.59***	.052	2 3/4	1/2	31/64	***$3.82***	7/16	8	2
5/64	***1.59***	.068	3	3/4	1/2	***3.82***	7/16	8	2
3/32	***1.59***	5/64	3	3/4	17/32	***4.64***	7/16	8	2
7/64	***1.59***	3/32	3 1/2	7/8	9/16	***4.64***	7/16	8	2
1/8	***1.59***	7/64	3 1/2	7/8	19/32	***5.07***	7/16	8	2
9/64	***2.00***	1/8	4	1	5/8	***5.07***	9/16	9	2 1/4
5/32	***2.00***	9/64	4	1	21/32	***5.50***	9/16	9	2 1/4
11/64	***2.00***	5/32	4 1/2	1 1/8	11/16	***5.50***	9/16	9	2 1/4
3/16	***2.00***	11/64	4 1/2	1 1/8	23/32	***5.96***	9/16	9	2 1/4
13/64	***2.40***	3/16	5	1 1/4	3/4	***5.96***	5/8	9 1/2	2 1/2
7/32	***2.40***	13/64	5	1 1/4	25/32	***6.40***	5/8	9 1/2	2 1/2
15/64	***2.40***	7/32	6	1 1/2	13/16	***6.40***	5/8	9 1/2	2 1/2
1/4	***2.40***	15/64	6	1 1/2	27/32	***7.04***	5/8	9 1/2	2 1/2
17/64	***2.61***	15/64	6	1 1/2	7/8	***7.04***	3/4	10	2 5/8
9/32	***2.61***	15/64	6	1 1/2	29/32	***7.93***	3/4	10	2 5/8
19/64	***2.61***	9/32	6	1 1/2	15/16	***7.93***	3/4	10	2 5/8
5/16	***2.61***	9/32	6	1 1/2	31/32	***8.80***	3/4	10	2 5/8
21/64	***3.01***	9/32	6	1 1/2	1	***8.80***	7/8	10 1/2	2 3/4
11/32	***3.01***	9/32	6	1 1/2	1 1/16	***9.93***	7/8	10 1/2	2 3/4
23/64	***3.01***	5/16	7	1 3/4	1 1/8	***11.02***	7/8	11	2 7/8
3/8	***3.01***	5/16	7	1 3/4	1 3/16	***12.14***	1	11	2 7/8
25/64	***3.42***	5/16	7	1 3/4	1 1/4	***13.47***	1	11 1/2	3
13/32	***3.42***	5/16	7	1 3/4	1 5/16	***14.98***	1	11 1/2	3
27/64	***3.42***	3/8	7	1 3/4	1 3/8	***16.54***	1	12	3 1/4
7/16	***3.42***	3/8	7	1 3/4	1 7/16	***18.08***	1 1/4	12	3 1/4
29/64	***3.82***	3/8	7	1 3/4	1 1/2	***19.64***	1 1/4	12 1/2	3 1/2
15/32	***3.82***	3/8	7	1 3/4	.....	.....	...	....	...

Cleveland Pilots
For Nos. 878, 879, 881 and 882 Counterbores and Spotfacers



Pilot is interchangeable and provides maximum flexibility of operation. With one counterbore it is possible to employ a number of pilots of different diameters with each tool size.

Pilots of smaller body diameter than pilot shank size cannot be used.

When ordering, specify size of counterbore or shank size of pilot in addition to pilot diameter.

Pilot Diam. In.	Each	Pilot Diam. In.	Each	Pilot Diam. In.	Each	Pilot Diam. In.	Each	Pilot Diam. In.	Each
3/32	$1.02	9/16	$1.59	1 3/16	$2.55	1 13/16	$3.98	2 7/16	$5.41
1/8	1.02	5/8	1.59	1 1/4	2.55	1 7/8	3.98	2 1/2	5.41
5/32	1.02	11/16	1.76	1 5/16	2.84	1 15/16	4.27	2 9/16	5.70
3/16	1.02	3/4	1.76	1 3/8	2.84	2	4.27	2 5/8	5.70
7/32	1.14	13/16	1.93	1 7/16	3.13	2 1/16	4.56	2 11/16	5.97
1/4	1.14	7/8	1.93	1 1/2	3.13	2 1/8	4.56	2 3/4	5.97
5/16	1.24	15/16	2.10	1 9/16	3.42	2 3/16	4.83	2 13/16	6.26
3/8	1.24	1	2.10	1 5/8	3.42	2 1/4	4.83	2 7/8	6.26
7/16	1.41	1 1/16	2.28	1 11/16	3.69	2 5/16	5.12	2 15/16	6.55
1/2	1.41	1 1/8	2.28	1 3/4	3.69	2 3/8	5.12	3	6.84

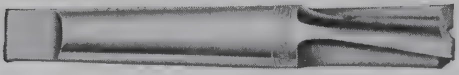
The following table lists the size range of pilots for each shank diameter available as regular tools.

Pilot Diameter Inches	Shank Diameter Inches	Pilot Diameter Inches	Shank Diameter Inches
3/32 to 11/32	3/32	5/16 to 1 3/16	5/16
5/32 to 7/16	5/32	3/8 to 1 1/2	3/8
3/16 to 11/16	3/16	7/16 to 1 15/16	7/16
1/4 to 15/16	1/4	1/2 to 3	1/2

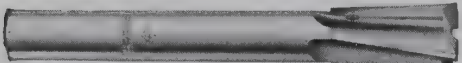
Cleveland Counterbores and Spot Facers

***High Speed* Steel**

Short Series—Interchangeable Pilots



No. 878, Taper Shank



No. 879, Straight Shank

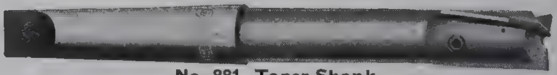
	No. 878		No. 879					
Diam. In.	Counterbore Only Each	Taper Shank No.	Counterbore Only Each	Size and Lgth. of Shank In.	Lgth. Overall In.	Hole Diam. In.	Range of Pilot Size In.	No. of Flutes
1/4	**$3.98**	1	**$3.98**	15/64x3 1/16	3 13/16	3/32	1/8- 3/16	3
17/64	**3.98**	1	**3.98**	15/64x3 1/16	3 13/16	3/32	1/8- 13/64	3
9/32	**3.98**	1	**3.98**	17/64x3 1/16	3 13/16	3/32	1/8- 7/32	3
19/64	**3.98**	1	**3.98**	17/64x3 1/16	3 13/16	3/32	1/8- 15/64	3
5/16	**3.98**	1	**3.98**	19/64x3 1/16	3 13/16	3/32	1/8- 1/4	3
21/64	**4.21**	1	**4.21**	5/16 x3 1/16	3 13/16	3/32	1/8- 17/64	3
11/32	**4.21**	1	**4.21**	5/16 x3 1/16	3 13/16	3/32	1/8- 9/32	3
23/64	**4.21**	1	**4.21**	5/16 x3 1/16	4 1/16	5/32	3/16- 19/64	3
3/8	**4.21**	1	**4.21**	5/16 x3 1/16	4 1/16	5/32	3/16- 5/16	3
25/64	**4.44**	1	**4.44**	3/8 x3 1/16	4 1/16	5/32	3/16- 21/64	3
13/32	**4.44**	1	**4.44**	3/8 x3 1/16	4 1/16	5/32	3/16- 11/32	3
27/64	**4.44**	1	**4.44**	3/8 x3 1/16	4 1/16	5/32	3/16- 23/64	3
7/16	**4.44**	1	**4.44**	3/8 x3 1/16	4 1/16	5/32	3/16- 3/8	3
29/64	**4.72**	1	**4.72**	7/16 x3 1/16	4 5/16	3/16	1/4- 25/64	3
15/32	**4.72**	1	**4.72**	7/16 x3 1/16	4 5/16	3/16	1/4- 13/32	3
31/64	**4.72**	1	**4.72**	7/16 x3 1/16	4 5/16	3/16	1/4- 27/64	3
1/2	**4.72**	1	**4.72**	7/16 x3 1/16	4 5/16	3/16	1/4- 7/16	3
33/64	**5.01**	1	**5.01**	1/2 x3 1/16	4 5/16	3/16	1/4- 29/64	3
17/32	**5.01**	1	**5.01**	1/2 x3 1/16	4 5/16	3/16	1/4- 15/32	3
35/64	**5.01**	1	**5.01**	1/2 x3 1/16	4 5/16	3/16	1/4- 31/64	3
9/16	**5.01**	1	**5.01**	1/2 x3 1/16	4 5/16	3/16	1/4- 1/2	3
37/64	**5.35**	2	**5.35**	1/2 x3 7/8	5 1/8	3/16	1/4- 33/64	3
19/32	**5.35**	2	**5.35**	1/2 x3 7/8	5 1/8	3/16	1/4- 17/32	3
39/64	**5.35**	2	**5.35**	1/2 x3 7/8	5 1/8	3/16	1/4- 35/64	3
5/8	**5.35**	2	**5.35**	1/2 x3 7/8	5 1/8	3/16	1/4- 9/16	3
41/64	**5.64**	2	**5.64**	1/2 x3 7/8	5 1/8	3/16	1/4- 37/64	3
21/32	**5.64**	2	**5.64**	1/2 x3 7/8	5 1/8	3/16	1/4- 19/32	3
43/64	**5.64**	2	**5.64**	1/2 x3 7/8	5 1/8	3/16	1/4- 39/64	3
11/16	**5.64**	2	**5.64**	1/2 x3 7/8	5 1/8	3/16	1/4- 5/8	3
45/64	**5.92**	2	**5.92**	1/4 x3 7/8	5 3/8	1/4	5/16- 41/64	3
23/32	**5.92**	2	**5.92**	1/2 x3 7/8	5 3/8	1/4	5/16- 21/32	3
47/64	**5.92**	2	**5.92**	1/2 x3 7/8	5 3/8	1/4	5/16- 43/64	3
3/4	**5.92**	2	**5.92**	1/2 x3 7/8	5 3/8	1/4	5/16- 11/16	3
49/64	**6.20**	2	**6.20**	5/8 x3 7/8	5 3/8	1/4	5/16- 45/64	3
25/32	**6.20**	2	**6.20**	5/8 x3 7/8	5 3/8	1/4	5/16- 23/32	3
51/64	**6.20**	2	**6.20**	5/8 x3 7/8	5 3/8	1/4	5/16- 47/64	3
13/16	**6.20**	2	**6.20**	5/8 x3 7/8	5 3/8	1/4	5/16- 3/4	3
53/64	**6.49**	2	**6.49**	3/4 x3 7/8	5 3/8	1/4	5/16- 49/64	3
27/32	**6.49**	2	**6.49**	3/4 x3 7/8	5 3/8	1/4	5/16- 25/32	3
55/64	**6.49**	2	**6.49**	3/4 x3 7/8	5 3/8	1/4	5/16- 51/64	3
7/8	**6.49**	2	**6.49**	3/4 x3 7/8	5 3/8	1/4	5/16- 13/16	3
57/64	**6.84**	3	**6.84**	3/4 x4 5/8	6 1/8	1/4	5/16- 53/64	3
29/32	**6.84**	3	**6.84**	3/4 x4 5/8	6 1/8	1/4	5/16- 27/32	3
59/64	**6.84**	3	**6.84**	3/4 x4 5/8	6 1/8	1/4	5/16- 55/64	3
15/16	**6.84**	3	**6.84**	3/4 x4 5/8	6 1/8	1/4	5/16- 7/8	3
61/64	**7.11**	3	**7.11**	3/4 x4 5/8	6 3/8	5/16	3/8- 57/64	3
31/32	**7.11**	3	**7.11**	3/4 x4 5/8	6 3/8	5/16	3/8- 29/32	3
63/64	**7.11**	3	**7.11**	3/4 x4 5/8	6 3/8	5/16	3/8- 59/64	3
1	**7.11**	3	**7.11**	3/4 x4 5/8	6 3/8	5/16	3/8- 15/16	3
1 1/16	**7.40**	3	**7.40**	3/4 x4 5/8	6 3/8	5/16	3/8-1	3
1 1/8	**7.69**	3	**7.69**	1 x4 5/8	6 3/8	5/16	3/8-1 1/16	3
1 3/16	**7.98**	3	**7.98**	1 x4 5/8	6 3/8	5/16	3/8-1 1/8	3
1 1/4	**8.54**	3	**8.54**	1 x4 5/8	6 5/8	3/8	7/16-1 3/16	5
1 5/16	**9.12**	3	**9.12**	1 x4 5/8	6 5/8	3/8	7/16-1 1/4	5
1 3/8	**9.68**	3	**9.68**	1 x4 5/8	6 5/8	3/8	7/16-1 5/16	5
1 7/16	**10.82**	4	**10.82**	1 1/4 x5 7/8	7 7/8	3/8	7/16-1 3/8	5
1 1/2	**11.40**	4	**11.40**	1 1/4 x5 7/8	7 7/8	3/8	7/16-1 7/16	5
1 9/16	**12.25**	4	**12.25**	1 1/4 x5 7/8	8 1/8	7/16	1/2-1 1/2	5
1 5/8	**13.10**	4	**13.10**	1 1/4 x5 7/8	8 1/8	7/16	1/2-1 9/16	5
1 11/16	**13.95**	4	**13.95**	1 1/4 x5 7/8	8 1/8	7/16	1/2-1 5/8	5
1 3/4	**14.82**	4	**14.82**	1 1/4 x5 7/8	8 1/8	7/16	1/2-1 11/16	5
1 13/16	**15.67**	4	**15.67**	1 1/2 x5 7/8	8 1/8	7/16	1/2-1 3/4	5
1 7/8	**16.52**	4	**16.52**	1 1/2 x5 7/8	8 1/8	7/16	1/2-1 13/16	5
1 15/16	**17.66**	4	**17.66**	1 1/2 x5 7/8	8 1/8	7/16	1/2-1 7/8	5
2	**18.80**	4	**18.80**	1 1/2 x5 7/8	8 3/8	1/2	9/16-1 15/16	5
2 1/8	**21.37**	5	**21.37**	1 1/2 x7 3/8	9 7/8	1/2	9/16-2 1/16	5
2 1/4	**23.07**	5	**23.07**	1 1/2 x7 3/8	9 7/8	1/2	9/16-2 3/16	5
2 3/8	**24.79**	5	**24.79**	1 3/4 x7 3/8	9 7/8	1/2	9/16-2 5/16	5
2 1/2	**26.49**	5	**26.49**	1 3/4 x7 3/8	9 7/8	1/2	9/16-2 7/16	5
2 5/8	**28.77**	5	**28.77**	1 3/4 x7 3/8	9 7/8	1/2	9/16-2 9/16	5
2 3/4	**31.05**	5	**31.05**	1 3/4 x7 3/8	9 7/8	1/2	9/16-2 11/16	5
2 7/8	**33.62**	5	**33.62**	1 3/4 x7 3/8	9 7/8	1/2	9/16-2 13/16	5
3	**36.48**	5	**36.48**	1 3/4 x7 3/8	9 7/8	1/2	9/16-2 15/16	5

When ordering pilots be sure to specify size of counterbore or shank size of pilot in addition to the pilot diam.

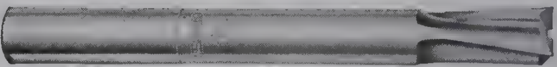
Cleveland Counterbores and Spot Facers

***High Speed* Steel**

Long Series—Interchangeable Pilots



No. 881, Taper Shank



No. 882, Straight Shank

	No. 881		No. 882					
Diam. In.	Counterbore Only Each	Taper Shank No.	Counterbore Only Each	Size and Lgth. of Shank In.	Lgth. Overall In.	Hole Diam. In.	Range of Pilot Size In.	No. of Flutes
1/4	**$5.58**	1	**$5.58**	15/64x5	5 3/4	3/32	1/8- 3/16	3
9/32	**5.58**	1	**5.58**	17/64x5	5 3/4	3/32	1/8- 7/32	3
5/16	**5.58**	1	**5.58**	3/8 x2 1/4	5 3/4	3/32	1/8- 1/4	3
11/32	**5.86**	1	**5.86**	3/8 x2 1/4	5 3/4	3/32	1/8- 9/32	3
3/8	**5.86**	1	**5.86**	3/8 x2 1/4	5 3/4	5/32	3/16- 5/16	3
13/32	**6.20**	1	**6.20**	7/16 x2 1/4	6 1/8	5/32	3/16- 11/32	3
7/16	**6.20**	1	**6.20**	7/16 x2 1/4	6 1/8	5/32	3/16- 3/8	3
15/32	**6.61**	1	**6.61**	1/2 x2 1/2	6 3/8	3/16	1/4- 13/32	3
1/2	**6.61**	1	**6.61**	1/2 x2 1/2	6 3/8	3/16	1/4- 7/16	3
17/32	**7.00**	1	**7.00**	1/2 x2 1/2	6 1/2	3/16	1/4- 15/32	3
9/16	**7.00**	1	**7.00**	1/2 x2 1/2	6 1/2	3/16	1/4- 1/2	3
19/32	**7.46**	2	**7.46**	5/8 x2 5/8	7	3/16	1/4- 17/32	3
5/8	**7.46**	2	**7.46**	5/8 x2 5/8	7	3/16	1/4- 9/16	3
21/32	**7.86**	2	**7.86**	5/8 x2 5/8	7	3/16	1/4- 19/32	3
11/16	**7.86**	2	**7.86**	5/8 x2 5/8	7	3/16	1/4- 5/8	3
23/32	**8.25**	2	**8.25**	3/4 x2 3/4	7 1/4	1/4	5/16- 21/32	3
3/4	**8.25**	2	**8.25**	3/4 x2 3/4	7 1/4	1/4	5/16- 11/16	3
25/32	**8.66**	2	**8.66**	3/4 x2 3/4	7 1/2	1/4	5/16- 23/32	3
13/16	**8.66**	2	**8.66**	3/4 x2 3/4	7 1/2	1/4	5/16- 3/4	3
7/8	**9.00**	2	**9.00**	7/8 x3	7 3/4	1/4	5/16- 13/16	3
15/16	**9.45**	3	**9.45**	7/8 x3	8 1/2	1/4	5/16- 7/8	3
1	**9.91**	3	**9.91**	1 x3	9	5/16	3/8- 15/16	3
1 1/16	**10.26**	3	**10.26**	1 x3	9	5/16	3/8-1	3
1 1/8	**10.71**	3	**10.71**	1 1/8 x3 1/4	9 1/4	5/16	3/8-1 1/16	3
1 3/16	**11.11**	3	**11.11**	1 1/8 x3 1/4	9 1/4	5/16	3/8-1 1/8	3
1 1/4	**11.85**	3	**11.85**	1 1/4 x3 1/2	9 1/2	3/8	7/16-1 3/16	5
1 5/16	**12.64**	3	**12.64**	1 1/4 x3 1/2	9 1/2	3/8	7/16-1 1/4	5
1 3/8	**13.45**	3	**13.45**	1 1/4 x3 1/2	9 1/2	3/8	7/16-1 5/16	5
1 7/16	**15.09**	4	**15.09**	1 3/8 x3 1/2	11	3/8	7/16-1 3/8	5
1 1/2	**15.96**	4	**15.96**	1 3/8 x3 1/2	11	3/8	7/16-1 7/16	5
1 9/16	**17.10**	4	**17.10**	1 3/8 x3 1/2	11	7/16	1/2-1 1/2	5
1 5/8	**18.24**	4	**18.24**	1 1/2 x3 1/2	11 1/4	7/16	1/2-1 9/16	5
1 11/16	**19.38**	4	**19.38**	1 1/2 x3 1/2	11 1/4	7/16	1/2-1 5/8	5
1 3/4	**20.52**	4	**20.52**	1 5/8 x3 3/4	11 1/2	7/16	1/2-1 11/16	5
1 13/16	**21.66**	4	**21.66**	1 5/8 x3 3/4	11 1/2	7/16	1/2-1 3/4	5
1 7/8	**23.07**	4	**23.07**	1 3/4 x3 3/4	11 3/4	7/16	1/2-1 13/16	5
1 15/16	**24.50**	4	**24.50**	1 3/4 x3 3/4	11 3/4	7/16	1/2-1 7/8	5
2	**26.22**	4	**26.22**	1 3/4 x3 3/4	12	1/2	9/16-1 15/16	5
2 1/8	**29.64**	5	**29.64**	1 7/8 x4	13	1/2	9/16-2 1/16	5
2 1/4	**32.19**	5	**32.19**	2 x4	13 1/2	1/2	9/16-2 3/16	5
2 3/8	**34.47**	5	**34.47**	2 1/8 x4	13 1/2	1/2	9/16-2 5/16	5
2 1/2	**36.75**	5	**36.75**	2 1/4 x4	14	1/2	9/16-2 7/16	5
2 5/8	**39.90**	5	**39.90**	2 1/4 x4	14	1/2	9/16-2 9/16	5
2 3/4	**43.03**	5	**43.03**	2 3/8 x4	15	1/2	9/16-2 11/16	5
2 7/8	**46.74**	5	**46.74**	2 1/2 x4	15	1/2	9/16-2 13/16	5
3	**50.72**	5	**50.72**	2 1/2 x4	15	1/2	9/16-2 15/16	5

MANUFACTURERS' CATALOGS

We shall be glad to send Manufacturers' Catalogs and Other Available Publications and Data on request.

No. 630 Cleveland Straight Shank Straight Fluted Machine Reamers

High Speed **Steel**

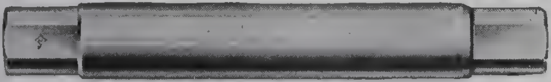
Eccentric Flutes—Right Hand Cut—Fractional Sizes

For use in drill presses, turret lathes and screw machines. Regularly pointed with a 45° chamfer suitable for production machine reaming. Reamers for brass or bronze require special clearance; furnished on request.

Diam. In.	Each	Diam. Shank In.	Lgth. In. Flute	Lgth. In. Overall	Diam. In.	Each	Diam. Shank In.	Lgth. In. Flute	Lgth. In. Overall
3/64	$1.82	.0369	1/2	2 3/4	15/32	$3.45	3/8	1 3/4	7
1/16	1.45	.052	1/2	2 3/4	31/64	3.45	7/16	2	8
5/64	1.45	.068	3/4	3	1/2	3.45	7/16	2	8
3/32	1.45	5/64	3/4	3	17/32	4.20	7/16	2	8
7/64	1.45	3/32	7/8	3 1/2	9/16	4.20	7/16	2	8
1/8	1.45	7/64	7/8	3 1/2	19/32	4.59	7/16	2	8
9/64	1.82	1/8	1	4	5/8	4.59	9/16	2 1/4	9
5/32	1.82	9/64	1	4	21/32	5.01	9/16	2 1/4	9
11/64	1.82	5/32	1 1/8	4 1/2	11/16	5.01	9/16	2 1/4	9
3/16	1.82	11/64	1 1/8	4 1/2	23/32	5.41	9/16	2 1/4	9
13/64	2.18	3/16	1 1/4	5	3/4	5.41	5/8	2 1/2	9 1/2
7/32	2.18	13/64	1 1/4	5	25/32	5.80	5/8	2 1/2	9 1/2
15/64	2.18	7/32	1 1/2	6	13/16	5.80	5/8	2 1/2	9 1/2
1/4	2.18	15/64	1 1/2	6	27/32	6.40	5/8	2 1/2	9 1/2
17/64	2.36	15/64	1 1/2	6	7/8	6.40	3/4	2 5/8	10
9/32	2.36	15/64	1 1/2	6	29/32	7.21	3/4	2 5/8	10
19/64	2.36	9/32	1 1/2	6	15/16	7.21	3/4	2 5/8	10
5/16	2.36	9/32	1 1/2	6	31/32	8.01	3/4	2 5/8	10
21/64	2.73	9/32	1 1/2	6	1	8.01	7/8	2 3/4	10 1/2
11/32	2.73	9/32	1 1/2	6	1 1/16	9.02	7/8	2 3/4	10 1/2
23/64	2.73	5/16	1 3/4	7	1 1/8	10.03	7/8	2 7/8	11
3/8	2.73	5/16	1 3/4	7	1 3/16	11.02	1	2 7/8	11
25/64	3.09	5/16	1 3/4	7	1 1/4	12.22	1	3	11 1/2
13/32	3.09	5/16	1 3/4	7	1 5/16	13.63	1	3	11 1/2
27/64	3.09	3/8	1 3/4	7	1 3/8	15.04	1	3 1/4	12
7/16	3.09	3/8	1 3/4	7	1 7/16	16.44	1 1/4	3 1/4	12
29/64	3.45	3/8	1 3/4	7	1 1/2	17.84	1 1/4	3 1/2	12 1/2

No. 143 Cleveland Steel Mandrels

Hardened and Ground



These mandrels are made of the best quality chromium alloy steel, hardened and ground perfectly true. They are slightly tapered, and the size is stamped on the large end. The small end of the mandrel has a short concentric entering lead on it to facilitate insertion of mandrel into the work. They are not injured by careful driving. Rawhide hammers are recommended for this purpose.

All sizes and dimensions not listed are special and subject to special prices.

Diam. Inches	Each	Length Overall Inches	Diam. Inches	Each	Length Overall Inches
1/8	$3.45	2 1/2	1 3/16	$9.86	7 3/4
5/32	3.66	3	1 1/4	9.86	8
3/16	3.66	3	1 5/16	11.77	8 1/4
7/32	3.75	3 3/4	1 3/8	11.77	8 1/2
1/4	3.75	3 3/4	1 7/16	13.77	8 3/4
9/32	3.98	4	1 1/2	13.77	9
5/16	3.98	4	1 9/16	15.78	9 1/4
11/32	4.06	4 1/4	1 5/8	15.78	9 1/2
3/8	4.06	4 1/4	1 11/16	17.65	9 3/4
13/32	4.18	4 1/2	1 3/4	17.65	10
7/16	4.18	4 1/2	1 13/16	19.66	10 1/4
15/32	4.39	5	1 7/8	19.66	10 1/2
1/2	4.39	5	1 15/16	22.09	10 3/4
9/16	4.59	5 1/4	2	22.09	11
5/8	4.59	5 1/2	2 1/8	24.61	11 1/2
11/16	5.02	5 3/4	2 1/4	27.03	12
3/4	5.02	6	2 3/8	29.46	12
13/16	5.98	6 1/4	2 1/2	31.99	12 1/2
7/8	5.98	6 1/2	2 5/8	35.77	12 1/2
15/16	7.03	6 3/4	2 3/4	39.34	13
1	7.03	7	2 7/8	42.93	13
1 1/16	8.40	7 1/4	3	46.81	13
1 1/8	8.40	7 1/2	.....	.....	....

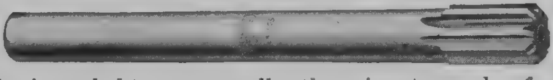
No. 502 Cleveland Peerless Expansion Hand Reamers

High Speed **Steel**

Diam. Inches	Each	Length Flute In.	Length Overall, I.
1/2	$8.05	3	6
17/32	8.50	3 1/8	6 1/4
9/16	8.95	3 1/4	6 1/2
19/32	9.39	3 3/8	6 3/4
5/8	9.84	3 1/2	7
21/32	10.29	3 11/16	7 3/8
11/16	10.75	3 7/8	7 3/4
23/32	11.18	4 1/16	8 1/8
3/4	11.64	4 3/16	8 3/8
25/32	12.08	4 3/8	8 3/4
13/16	12.54	4 9/16	9 1/8
27/32	12.98	4 11/16	9 3/8
7/8	13.42	4 7/8	9 3/4
29/32	13.96	5	10
15/16	14.52	5 1/8	10 1/4
31/32	15.22	5 5/16	10 5/8
1	15.93	5 7/16	10 7/8
1 1/16	17.37	5 5/8	11 1/4
1 1/8	19.17	5 13/16	11 5/8
1 3/16	20.96	6	12
1 1/4	23.11	6 1/8	12 1/4
1 5/16	25.44	6 1/4	12 1/2
1 3/8	28.04	6 5/16	12 5/8
1 7/16	30.73	6 7/16	12 7/8
1 1/2	33.33	6 1/2	13
1 9/16	35.12	6 1/2	13
1 5/8	37.11	6 1/2	13
1 11/16	39.08	6 3/4	13 1/2
1 3/4	41.23	6 3/4	13 1/2
1 13/16	43.46	6 3/4	13 1/2
1 7/8	45.80	7	14
1 15/16	48.21	7	14
2	50.90	7	14

No. 504 Cleveland Peerless Expansion Machine Reamers

Straight Shank—*High Speed* Steel



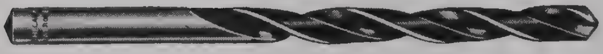
Not intended to ream smaller than size stamped on body. Expansive feature designed to maintain initial size by compensating for wear at the cutting end. When worn, it may be expanded oversize, reground to size, and recleared.

Diam. In.	Each	Diam. Shank In.	Lgth. Flute In.	Lgth. Overall In.	Diam. In.	Each	Diam. Shank In.	Lgth. Flute In.	Lgth. Overall In.
7/16	$6.01	3/8	7/8	7	1 3/8	$17.30	1	2	12
15/32	6.24	3/8	7/8	7	1 7/16	18.04	1 1/4	2	12
1/2	6.38	7/16	1	8	1 1/2	18.80	1 1/4	2 1/8	12 1/2
17/32	6.61	7/16	1	8	1 9/16	19.70	1 1/4	2 1/8	12 1/2
9/16	6.76	7/16	1 1/8	8	1 5/8	20.60	1 1/4	2 1/4	13
19/32	6.99	7/16	1 1/8	8	1 11/16	21.51	1 1/4	2 1/4	13
5/8	7.14	9/16	1 1/4	9	1 3/4	22.57	1 1/4	2 3/8	13 1/2
21/32	7.35	9/16	1 1/4	9	1 13/16	23.60	1 1/2	2 3/8	13 1/2
11/16	7.52	9/16	1 1/4	9	1 7/8	24.66	1 1/2	2 1/2	14
23/32	7.88	9/16	1 1/4	9	1 15/16	25.87	1 1/2	2 1/2	14
3/4	8.26	5/8	1 3/8	9 1/2	2	27.08	1 1/2	2 1/2	14
25/32	8.64	5/8	1 3/8	9 1/2	2 1/16	28.28	1 1/2	2 3/4	14 1/2
13/16	9.02	5/8	1 3/8	9 1/2	2 1/8	29.62	1 1/2	2 3/4	14 1/2
27/32	9.39	5/8	1 3/8	9 1/2	2 3/16	32.49	1 3/4	2 3/4	14 1/2
7/8	9.78	3/4	1 1/2	10	2 1/4	33.85	1 3/4	2 3/4	14 1/2
29/32	10.22	3/4	1 1/2	10	2 5/16	35.19	1 3/4	3	15
15/16	10.66	3/4	1 1/2	10	2 3/8	36.70	1 3/4	3	15
31/32	11.12	3/4	1 1/2	10	2 7/16	38.36	1 3/4	3	15
1	11.72	7/8	1 5/8	10 1/2	2 1/2	40.02	1 3/4	3	15
1 1/32	12.32	7/8	1 5/8	10 1/2	2 9/16	41.82	2	3 1/4	15 1/2
1 1/16	12.93	7/8	1 5/8	10 1/2	2 5/8	43.63	2	3 1/4	15 1/2
1 3/32	13.53	7/8	1 5/8	10 1/2	2 11/16	45.43	2	3 1/4	15 1/2
1 1/8	14.13	7/8	1 3/4	11	2 3/4	47.40	2	3 1/4	15 1/2
1 5/32	14.58	7/8	1 3/4	11	2 13/16	49.34	2	3 1/2	16
1 3/16	15.04	1	1 3/4	11	2 7/8	51.44	2	3 1/2	16
1 7/32	15.49	1	1 3/4	11	2 15/16	53.70	2	3 1/2	16
1 1/4	16.08	1	1 7/8	11 1/2	3	56.12	2	3 1/2	16
1 5/16	16.69	1	1 7/8	11 1/2	....	.....	...	...	....

Chicago-Latrobe Straight Shank Twist Drills

High Speed **Steel**

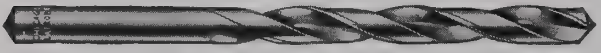
General Purpose



No. 150, Jobbers' Sizes **No. 140, Letter Sizes**

For most types of materials and setups, except those which present a particularly difficult problem, either because of materials, set up conditions, or both. Under such conditions, order one of the following types of drills.

Heavy Duty

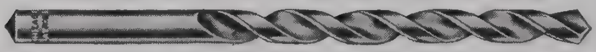


No. 150-A, Jobbers' Sizes **No. 140-A, Letter Sizes**

Heavy web; primarily for jobs where maximum strength and rigidity required, such as portable drilling, bolt or cotter pin drilling, stove burner, steering arms, knuckles, etc.

Heavy cross section, should be thinned at web after being repointed. With approximate 136-degree included angle point, used for portable drilling of stainless steel sheets.

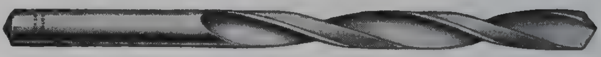
Fast Spiral



No. 150-B, Jobbers' Sizes **No. 140-B, Letter Sizes**

Wide polished flutes, narrow lands; primarily for use in non-ferrous metals such as aluminum, die cast metal, magnesium, zinc, slate, copper, deep hole drilling in fiber and plastic; also in stainless steels, and deep hole drilling.

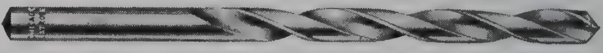
Slow Spiral



No. 150-C, Jobbers' Sizes **No. 140-C, Letter Sizes**

For use in bakelite and other molded plastic materials, brass, fiber, hard rubber and for some horizontal drilling, where thrust and torque pressure are not too great for the relative strength of the drill. Slow spiral angle, wide polished flutes, comparatively thin webs, maximum chip space.

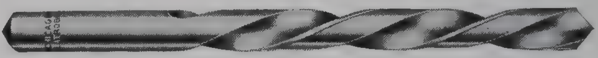
Bright Spiral



No. 150-D, Jobbers' Sizes **No. 140-D, Letter Sizes**

General purpose construction, but are not subjected to the additional treatment which general purpose drills receive; for those wishing to chrome plate their own drills.

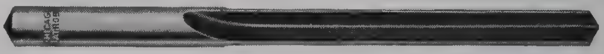
Left-Hand



No. 150-L, Jobbers' Sizes **No. 140-L, Letter Sizes**

Available from stock. **Specify** left-hand on order.

Straight Flute



No. 150-S, Jobbers' Sizes **No. 140-S, Letter Sizes**

Adapted for work in brass and other soft materials.

Jobbers' Sizes

Diam. Inches	No. 150 Each	Nos. 150-A 150-B 150-D Each	No. 150-C Each	No. 150-L Left Hand Each	No. 150-S Straight Flutes Each	Decimal Equiv. In.	Approx. Lgth. Twist In.	Over-all Lgth. In.
1/64	**$.30**	....	....	**$.68**	....	.0156	3/16	3/4
1/32	**.24**	....	....	**.56**	....	.0312	1/2	1 3/8
3/64	**.16**	**$.16**	**$.19**	**.30**	....	.0469	3/4	1 3/4
1/16	**.16**	**.16**	**.19**	**.30**	**$.48**	.0625	7/8	1 7/8
5/64	**.18**	**.18**	**.19**	**.32**	**.50**	.0781	1	2
3/32	**.19**	**.19**	**.20**	**.34**	**.56**	.0937	1 1/4	2 1/4
7/64	**.21**	**.21**	**.25**	**.40**	**.62**	.1094	1 1/2	2 5/8
1/8	**.25**	**.25**	**.28**	**.46**	**.73**	.1250	1 5/8	2 3/4
9/64	**.26**	**.26**	**.31**	**.50**	**.80**	.1406	1 3/4	2 7/8
5/32	**.28**	**.28**	**.33**	**.54**	**.84**	.1562	2	3 1/8
11/64	**.32**	**.32**	**.37**	**.58**	**.93**	.1719	2 1/8	3 1/4
3/16	**.42**	**.42**	**.46**	**.62**	**1.00**	.1875	2 5/16	3 1/2
13/64	**.45**	**.45**	**.52**	**.72**	....	.2031	2 7/16	3 5/8
7/32	**.50**	**.50**	**.57**	**.78**	**1.23**	.2187	2 1/2	3 3/4
15/64	**.52**	**.52**	**.61**	**.81**	....	.2344	2 5/8	3 7/8
1/4	**.57**	**.57**	**.66**	**.88**	**1.41**	.2500	2 3/4	4
17/64	**$.64**	**$.64**	**$.73**	**$.99**	....	.2656	2 7/8	4 1/8
9/32	**.70**	**.70**	**.80**	**1.09**	**$1.72**	.2812	2 5/16	4 1/4
19/64	**.78**	**.78**	**.88**	**1.20**	....	.2969	3 1/16	4 3/8
5/16	**.84**	**.84**	**.94**	**1.29**	**2.05**	.3125	3 3/16	4 1/2
21/64	**.92**	**.92**	**1.05**	**1.42**	....	.3281	3 5/16	4 5/8
11/32	**1.02**	**1.02**	**1.14**	**1.56**	**2.46**	.3437	3 7/16	4 3/4
23/64	**1.10**	**1.10**	**1.24**	**1.69**	....	.3594	3 1/2	4 7/8
3/8	**1.18**	**1.18**	**1.35**	**1.83**	**2.89**	.3750	3 5/8	5
25/64	**1.30**	**1.30**	**1.47**	**2.00**	....	.3906	3 3/4	5 1/8
13/32	**1.40**	**1.40**	**1.59**	**2.17**	....	.4062	3 7/8	5 1/4
27/64	**1.52**	**1.52**	**1.71**	**2.32**	....	.4219	3 15/16	5 3/8
7/16	**1.62**	**1.62**	**1.83**	**2.50**	**3.94**	.4375	4 1/16	5 1/2
9/64	**1.74**	**1.74**	**1.96**	**2.67**	....	.4531	4 3/16	5
15/32	**1.84**	**1.84**	**2.08**	**2.84**	....	.4687	4 5/16	5 3/4
31/64	**1.98**	**1.98**	**2.24**	**3.04**	....	.4844	4 3/8	5 7/8
1/2	**2.10**	**2.10**	**2.38**	**3.25**	**5.12**	.5000	4 1/2	6

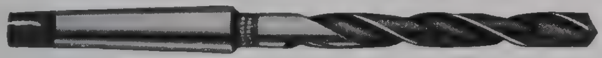
Letter Sizes

Size	Nos. 140 140-A 140-B 140-D Each	No. 140-C Each	No. 140-L Left Hand Each	Decimal Equiv. In.	Approx. Lgth. Twist In.	Over-all Lgth. In.
A	**$.52**	**$.61**	**$.81**	.234	2 5/8	3 7/8
B	**.56**	**.63**	**.86**	.238	2 3/4	4
C	**.56**	**.63**	**.86**	.242	2 3/4	4
D	**.57**	**.66**	**.88**	.246	2 3/4	4
E	**.57**	**.66**	**.88**	.250	2 3/4	4
F	**.64**	**.73**	**.99**	.257	2 7/8	4 1/8
G	**.64**	**.73**	**.99**	.261	2 7/8	4 1/8
H	**.68**	**.78**	**1.05**	.266	2 7/8	4 1/8
I	**.68**	**.78**	**1.05**	.272	2 7/8	4 1/8
J	**.68**	**.78**	**1.05**	.277	2 7/8	4 1/8
K	**.70**	**.80**	**1.09**	.218	2 15/16	4 1/4
L	**.75**	**.85**	**1.15**	.290	2 15/16	4 1/4
M	**.78**	**.88**	**1.20**	.295	3 1/16	4 3/8
N	**$.81**	**$.92**	**$1.26**	.302	3 1/16	4 3/8
O	**.91**	**1.02**	**1.38**	.316	3 3/16	4 1/2
P	**.92**	**1.05**	**1.42**	.323	3 5/16	4 5/8
Q	**1.02**	**1.14**	**1.56**	.332	3 7/16	4 3/4
R	**1.02**	**1.14**	**1.56**	.339	3 7/16	4 3/4
S	**1.10**	**1.24**	**1.69**	.348	3 1/2	4 7/8
T	**1.10**	**1.24**	**1.69**	.358	3 1/2	4 7/8
U	**1.18**	**1.35**	**1.83**	.368	3 5/8	5
V	**1.27**	**1.44**	**1.95**	.377	3 5/8	5
W	**1.30**	**1.47**	**2.00**	.386	3 3/4	5 1/8
X	**1.36**	**1.56**	**2.11**	.397	3 3/4	5 1/8
Y	**1.36**	**1.56**	**2.11**	.404	3 7/8	5 1/4
Z	**1.48**	**1.68**	**2.29**	.413	3 7/8	5 1/4

Chicago-Latrobe Taper Shank Twist Drills

High Speed **Steel**

No. 110, shank sizes regular, will be supplied unless otherwise specified.

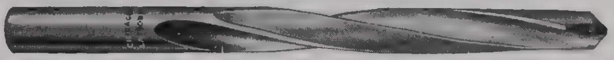


	No. 110 Regular Shank Series				No. 110-S Smaller and Larger Shank Series				
Diam. Inches	Each	Taper Shank No.	Lgth. Over-all In.	Approx. Lgth. Twist In.	Each	Taper Shank No.	Lgth. Over-all In.	Approx. Lgth. Twist In.	Decimal Equiv. In.
1/8	***$.90***	1	5 1/8	1 7/8	.....	.	....	...	.1250
9/64	***.99***	1	5 3/8	2 1/8	.....	.	....	...	.1406
5/32	***.99***	1	5 3/8	2 1/2	.....	.	....	...	.1562
11/64	***1.12***	1	5 3/4	2 1/2	.....	.	....	...	.1719
3/16	***1.12***	1	5 3/4	2 1/2	.....	.	....	...	.1875
13/64	***1.22***	1	6	2 3/4	.....	.	....	...	.2031
7/32	***1.22***	1	6	2 3/4	.....	.	....	...	.2187
15/64	***1.26***	1	6 1/8	2 7/8	.....	.	....	...	.2344
1/4	***1.26***	1	6 1/8	2 7/8	.....	.	....	...	.2500
17/64	***1.35***	1	6 1/4	3	.....	.	....	...	.2656
9/32	***1.35***	1	6 1/4	3	.....	.	....	...	.2812
19/64	***1.45***	1	6 3/8	3 1/8	.....	.	....	...	.2969
5/16	***1.45***	1	6 3/8	3 1/8	.....	.	....	...	.3125
21/64	***1.53***	1	6 1/2	3 1/4	.....	.	....	...	.3281
11/32	***1.53***	1	6 1/2	3 1/4	.....	.	....	...	.3437
23/64	***1.72***	1	6 3/4	3 1/2	.....	.	....	...	.3594
3/8	***1.72***	1	6 3/4	3 1/2	***$1.90***	2	7 3/8	3 1/2	.3750
25/64	***1.90***	1	7	3 5/8	***2.04***	2	7 1/2	3 5/8	.3906
13/32	***1.90***	1	7	3 5/8	***2.04***	2	7 1/2	3 5/8	.4062
27/64	***2.07***	1	7 1/4	3 7/8	***2.22***	2	7 3/4	3 7/8	.4219
7/16	***2.07***	1	7 1/4	3 7/8	***2.22***	2	7 3/4	3 7/8	.4375
29/64	***2.26***	1	7 1/2	4 1/8	***2.41***	2	8	4 1/8	.4531
15/32	***2.26***	1	7 1/2	4 1/8	***2.41***	2	8	4 1/8	.4687
31/64	***2.68***	2	8 1/4	4 3/8	***2.50***	1	7 3/4	4 3/8	.4844
1/2	***2.68***	2	8 1/4	4 3/8	***2.50***	1	7 3/4	4 3/8	.5000
33/64	***2.96***	2	8 1/2	4 5/8	***2.77***	1	8	4 5/8	.5156
17/32	***2.96***	2	8 1/2	4 5/8	***2.77***	1	8	4 5/8	.5312
35/64	***3.40***	2	8 3/4	4 7/8	***3.19***	1	8 1/4	4 7/8	.5469
9/16	***3.40***	2	8 3/4	4 7/8	***3.19***	1	8 1/4	4 7/8	.5625
37/64	***3.64***	2	8 3/4	4 7/8	....	.	....	...	.5781
19/32	***3.64***	2	8 3/4	4 7/8	....	.	....	...	.5937
39/64	***3.87***	2	8 3/4	4 7/8	....	.	....	...	.6094
5/8	***3.87***	2	8 3/4	4 7/8	....	.	....	...	.6250
41/64	***4.32***	2	9	5 1/8	***4.69***	3	9 3/4	5 1/8	.6406
21/32	***4.32***	2	9	5 1/8	***4.69***	3	9 3/4	5 1/8	.6562
43/64	***4.78***	2	9 1/4	5 3/8	***5.20***	3	10	5 3/8	.6719
11/16	***4.78***	2	9 1/4	5 3/8	***5.20***	3	10	5 3/8	.6875
45/64	***5.24***	2	9 1/2	5 5/8	***5.65***	3	10 1/4	5 5/8	.7031
23/32	***5.24***	2	9 1/2	5 5/8	***5.65***	3	10 1/4	5 5/8	.7187
47/64	***5.71***	2	9 3/4	5 7/8	***6.15***	3	10 1/2	5 7/8	.7344
3/4	***5.71***	2	9 3/4	5 7/8	***6.15***	3	10 1/2	5 7/8	.7500
49/64	***5.94***	2	9 7/8	6	***6.39***	3	10 5/8	6	.7656
25/32	***5.94***	2	9 7/8	6	***6.39***	3	10 5/8	6	.7812
51/64	***6.62***	3	10 3/4	6 1/8	***6.15***	2	10	6 1/8	.7969
13/16	***6.62***	3	10 3/4	6 1/8	***6.15***	2	10	6 1/8	.8125
53/64	***6.99***	3	10 3/4	6 1/8	***6.51***	2	10	6 1/8	.8281
27/32	***6.99***	3	10 3/4	6 1/8	***6.51***	2	10	6 1/8	.8437
55/64	***7.34***	3	10 3/4	6 1/8	***6.84***	2	10	6 1/8	.8594
7/8	***7.34***	3	10 3/4	6 1/8	***6.84***	2	10	6 1/8	.8750
57/64	***7.71***	3	10 3/4	6 1/8	***7.17***	2	10	6 1/8	.8906
29/32	***7.71***	3	10 3/4	6 1/8	***7.17***	2	10	6 1/8	.9062
59/64	***8.08***	3	10 3/4	6 1/8	....	.	....	...	.9219
15/16	***8.08***	3	10 3/4	6 1/8	....	.	....	...	.9375
61/64	***8.80***	3	11	6 3/8	....	.	....	...	.9531
31/32	***8.80***	3	11	6 3/8	....	.	....	...	.9687
63/64	***9.37***	3	11	6 3/8	....	.	....	...	.9844
1	***9.37***	3	11	6 3/8	***10.23***	4	12	6 3/8	1.0000
1 1/64	***10.05***	3	11 1/8	6 1/2	***10.98***	4	12 1/8	6 1/2	1.0156
1 1/32	***10.05***	3	11 1/8	6 1/2	***10.98***	4	12 1/8	6 1/2	1.0312
1 3/64	***10.74***	3	11 1/4	6 5/8	***11.70***	4	12 1/4	6 5/8	1.0469
1 1/16	***10.74***	3	11 1/4	6 5/8	***11.70***	4	12 1/4	6 5/8	1.0625
1 5/64	***12.10***	4	12 1/2	6 7/8	***11.14***	3	11 1/2	6 7/8	1.0781
1 3/32	***12.10***	4	12 1/2	6 7/8	***11.14***	3	11 1/2	6 7/8	1.0937
1 7/64	***13.03***	4	12 3/4	7 1/8	***12.02***	3	11 3/4	7 1/8	1.1094
1 1/8	***13.03***	4	12 3/4	7 1/8	***12.02***	3	11 3/4	7 1/8	1.1250
1 9/64	***13.72***	4	12 7/8	7 1/4	***12.67***	3	11 7/8	7 1/4	1.1406
1 5/32	***13.72***	4	12 7/8	7 1/4	***12.67***	3	11 7/8	7 1/4	1.1562

No. 1150 Chicago-Latrobe Straight Shank Twist Drills

Carbide Tipped

Jobbers' Lengths—Fractional Sizes



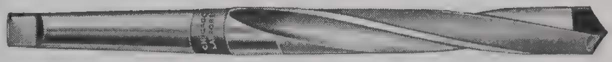
Body of High Speed Steel

Size Inches	Each	Decimal Equivalent Inches	Overall Lgth. Inches	Length of Flute Inches	Size Inches	Each	Decimal Equivalent Inches	Overall Lgth. Inches	Length of Flute Inches
1/8	**$3.09**	.1250	2 3/4	1 5/8	21/64	**$5.51**	.3281	4 5/8	3 5/16
9/64	**3.31**	.1406	2 7/8	1 3/4	11/32	**5.51**	.3437	4 3/4	3 7/16
5/32	**3.31**	.1562	3 1/8	2	23/64	**5.96**	.3594	4 7/8	3 1/2
11/64	**3.54**	.1719	3 1/4	2 1/8	3/8	**5.96**	.3750	5	3 5/8
3/16	**3.54**	.1875	3 1/2	2 5/16	25/64	**6.41**	.3906	5 1/8	3 3/4
13/64	**3.76**	.2031	3 5/8	2 7/16	13/32	**6.41**	.4062	5 1/4	3 7/8
7/32	**3.76**	.2187	3 3/4	2 1/2	27/64	**7.08**	.4219	5 3/8	3 15/16
15/64	**4.16**	.2344	3 7/8	2 5/8	7/16	**7.08**	.4375	5 1/2	4 1/16
1/4	**4.16**	.2500	4	2 3/4	29/64	**7.93**	.4531	5 5/8	4 3/16
17/64	**4.83**	.2656	4 1/8	2 7/8	15/32	**7.93**	.4687	5 3/4	4 5/16
9/32	**4.83**	.2812	4 1/4	2 15/16	31/64	**8.83**	.4844	5 7/8	4 3/8
19/64	**5.28**	.2969	4 3/8	3 1/16	1/2	**8.83**	.5000	6	4 1/2
5/16	**5.28**	.3125	4 1/2	3 3/16	....	.....	.....	...	...

No. 1110 Chicago-Latrobe Taper Shank Drills

Carbide Tipped

High Speed Steel Body

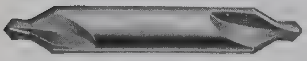


Diam. In.	Each	Decimal Equiv. In.	Taper Shank No.	Lgth. Over-all In.	Diam. In.	Each	Decimal Equiv. In.	Taper Shank No.	Lgth. Over-all In.
1/8	**$4.16**	.1250	1	5 1/8	45/64	**$16.65**	.7031	2	9 1/2
9/64	**4.38**	.1406	1	5 3/8	23/32	**16.65**	.7188	2	9 1/2
5/32	**4.38**	.1562	1	5 3/8	47/64	**16.98**	.7344	2	9 3/4
11/64	**4.61**	.1719	1	5 3/4	3/4	**16.98**	.7500	2	9 3/4
3/16	**4.61**	.1875	1	5 3/4	49/64	**17.21**	.7656	2	9 7/8
13/64	**4.95**	.2031	1	6	25/32	**17.21**	.7812	2	9 7/8
7/32	**4.95**	.2188	1	6	51/64	**17.43**	.7969	3	10 3/4
15/64	**5.56**	.2844	1	6 1/8	13/16	**17.43**	.8125	3	10 3/4
1/4	**5.56**	.2500	1	6 1/8	53/64	**17.43**	.8281	3	10 3/4
17/64	**6.18**	.2656	1	6 1/4	27/32	**17.43**	.8438	3	10 3/4
9/32	**6.18**	.2812	1	6 1/4	55/64	**18.45**	.8594	3	10 3/4
19/64	**6.69**	.2969	1	6 3/8	7/8	**18.45**	.8750	3	10 3/4
5/16	**6.69**	.3125	1	6 3/8	57/64	**18.95**	.8906	3	10 3/4
21/64	**7.36**	.3281	1	6 1/2	29/32	**18.95**	.9062	3	10 3/4
11/32	**7.36**	.3438	1	6 1/2	59/64	**19.40**	.9219	3	10 3/4
23/64	**8.15**	.3594	1	6 3/4	15/16	**19.40**	.9375	3	10 3/4
3/8	**8.15**	.3750	1	6 3/4	61/64	**20.25**	.9531	3	11
25/64	**8.94**	.3906	1	7	31/32	**20.25**	.9688	3	11
13/32	**8.94**	.4062	1	7	63/64	**20.92**	.9844	3	11
27/64	**10.29**	.4219	1	7 1/4	1	**20.92**	1.0000	3	11
7/16	**10.29**	.4375	1	7 1/4	1 1/64	**22.95**	1.0156	3	11 1/8
29/64	**11.47**	.4531	1	7 1/2	1 1/32	**22.95**	1.0312	3	11 1/8
15/32	**11.47**	.4688	1	7 1/2	1 3/64	**24.01**	1.0469	3	11 1/4
31/64	**12.37**	.4844	2	8 1/4	1 1/16	**24.01**	1.0625	3	11 1/4
1/2	**12.37**	.5000	2	8 1/4	1 5/64	**25.76**	1.0781	4	12 1/2
33/64	**12.76**	.5156	2	8 1/2	1 3/32	**25.76**	1.0938	4	12 1/2
17/32	**12.76**	.5312	2	8 1/2	1 7/64	**27.11**	1.1094	4	12 3/4
35/64	**12.99**	.5469	2	8 3/4	1 1/8	**27.11**	1.1250	4	12 3/4
9/16	**12.99**	.5625	2	8 3/4	1 9/64	**28.68**	1.1406	4	12 7/8
37/64	**13.66**	.5781	2	8 3/4	1 5/32	**28.68**	1.1562	4	12 7/8
19/32	**13.66**	.5938	2	8 3/4	1 11/64	**29.75**	1.1719	4	13
39/64	**15.86**	.6094	2	8 3/4	1 3/16	**29.75**	1.1875	4	13
5/8	**15.86**	.6250	2	8 3/4	1 13/64	**30.82**	1.2031	4	13 1/8
41/64	**16.03**	.6406	2	9	1 7/32	**30.82**	1.2188	4	13 1/8
21/32	**16.03**	.6562	2	9	1 15/64	**32.62**	1.2344	4	13 1/2
43/64	**16.31**	.6719	2	9 1/4	1 1/4	**32.62**	1.2500	4	13 1/2
11/16	**16.31**	.6875	2	9 1/4	.....	......	......	.	....

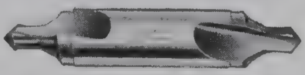
Chicago-Latrobe Combined Drills and Countersinks

Plain Type—No. 117, Carbon; No. 217 *High Speed*

Bell Type—No. 217-B *High Speed*



Plain Type



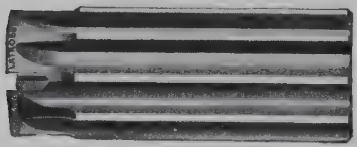
Bell Type

Included angle of countersink is 60°; bell angle is 120°.

Size	—*High Speed*— No. 217 Each	—*High Speed*— No. 217-B Each	No. 117 Carbon Each	Diam. Body In.	Diam. and Lgth. of Drills Inches	Diam. Bell In.	Overall Length Inches	No. per Pkg.
1	***$.98***	....	$.87	1/8	3/64x3/64	....	1 1/4	12
2	***.98***	....	.87	3/16	5/64x5/64	....	1 7/8	12
3	***.98***	....	.87	1/4	7/64x7/64	....	2	12
4	***.98***	....	.87	5/16	1/8x1/8	....	2 1/8	12
5	***1.48***	....	1.33	7/16	3/16x3/16	....	2 3/4	12
6	***2.24***	....	2.01	1/2	7/32x7/32	....	3	6
7	***3.00***	....	2.70	5/8	1/4x1/4	....	3 1/4	6
8	***4.00***	....	....	3/4	5/16x5/16	....	3 1/2	6
11	....	***$1.12***	....	1/8	3/64x3/64	.100	1 1/4	12
12	....	***1.12***	....	3/16	1/16x1/16	.150	1 7/8	12
13	....	***1.12***	....	1/4	3/32x3/32	.200	2	12
14	....	***1.12***	....	5/16	7/64x7/64	.250	2 1/8	12
15	....	***1.69***	....	7/16	5/32x5/32	.350	2 3/4	12
16	....	***2.55***	....	1/2	3/16x3/16	.400	3	6
17	....	***3.40***	....	5/8	7/32x7/32	.500	3 1/4	6
18	....	***4.54***	....	3/4	1/4x1/4	.600	3 1/2	6

No. 460 Chicago-Latrobe Straight Fluted Shell Reamers

***High Speed* Steel**



Diam. In.	Each	Diam. Hole Large End In.	Length Over-all In.	Fitting Arbor No.	Diam. In.	Each	Diam. Hole Large End In.	Length Over-all In.	Fitting Arbor No.
3/4	***$7.41***	3/8	2 1/4	4	2	***$26.06***	1	3 1/2	8
13/16	***7.71***	1/2	2 1/2	5	2 1/16	***27.50***	1 1/4	3 3/4	9
7/8	***8.19***	1/2	2 1/2	5	2 1/8	***28.95***	1 1/4	3 3/4	9
15/16	***8.67***	1/2	2 1/2	5	2 3/16	***30.39***	1 1/4	3 3/4	9
1	***9.15***	1/2	2 1/2	5	2 1/4	***31.84***	1 1/4	3 3/4	9
1 1/16	***9.64***	5/8	2 3/4	6	2 5/16	***33.30***	1 1/4	3 3/4	9
1 1/8	***10.11***	5/8	2 3/4	6	2 3/8	***34.75***	1 1/4	3 3/4	9
1 3/16	***10.60***	5/8	2 3/4	6	2 7/16	***36.19***	1 1/4	3 3/4	9
1 1/4	***11.08***	5/8	2 3/4	6	2 1/2	***37.64***	1 1/4	3 3/4	9
1 5/16	***11.56***	3/4	3	7	2 9/16	***39.57***	1 1/2	4	10
1 3/8	***12.54***	3/4	3	7	2 5/8	***41.98***	1 1/2	4	10
1 7/16	***13.51***	3/4	3	7	2 11/16	***44.40***	1 1/2	4	10
1 1/2	***14.47***	3/4	3	7	2 3/4	***46.81***	1 1/2	4	10
1 9/16	***15.91***	3/4	3	7	2 13/16	***49.23***	1 1/2	4	10
1 5/8	***17.36***	3/4	3	7	2 7/8	***52.14***	1 1/2	4	10
1 11/16	***18.80***	1	3 1/2	8	2 15/16	***55.02***	1 1/2	4	10
1 3/4	***20.26***	1	3 1/2	8	3	***57.92***	1 1/2	4	10
1 13/16	***21.70***	1	3 1/2	8	.....	.....	...	...	..
1 7/8	***23.16***	1	3 1/2	8	.....	.....	...	...	..
1 15/16	***24.60***	1	3 1/2	8	.....	.....	...	...	..

Sizes and dimensions not listed are special and can be furnished at special prices.

No. 400 Chicago-Latrobe Straight Fluted Chucking Reamers

***High Speed* Steel**

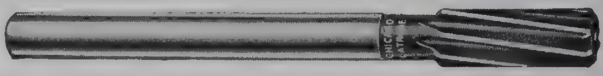
With Taper Shanks

Diam. In.	Each	Lgth. Over-all In.	Lgth. Flute In.	Taper Shank No.	Diam. In.	Each	Lgth. Over-all In.	Lgth. Flute In.	Taper Shank No.
1/8	..*..	5	7/8	1	23/32	***$5.80***	9	2 1/4	2
5/32	..*..	5 1/4	1	1	3/4	***5.80***	9 1/2	2 1/2	2
3/16	..*..	5 1/2	1 1/8	1	25/32	***6.40***	9 1/2	2 1/2	2
7/32	..*..	5 3/4	1 1/4	1	13/16	***6.40***	9 1/2	2 1/2	2
1/4	***$2.79***	6	1 1/2	1	27/32	***7.21***	9 1/2	2 1/2	2
9/32	***3.00***	6	1 1/2	1	7/8	***7.21***	10	2 5/8	2
5/16	***3.00***	6	1 1/2	1	29/32	***8.01***	10	2 5/8	2
11/32	***3.39***	6	1 1/2	1	15/16	***8.01***	10	2 5/8	3
3/8	***3.39***	7	1 3/4	1	31/32	***8.80***	10	2 5/8	3
13/32	***3.79***	7	1 3/4	1	1	***8.80***	10 1/2	2 3/4	3
7/16	***3.79***	7	1 3/4	1	1 1/16	***9.81***	10 1/2	2 3/4	3
15/32	***4.20***	7	1 3/4	1	1 1/8	***10.82***	11	2 7/8	3
1/2	***4.20***	8	2	1	1 3/16	***11.82***	11	2 7/8	3
17/32	***4.59***	8	2	1	1 1/4	***13.03***	11 1/2	3	4
9/16	***4.59***	8	2	1	1 5/16	***14.43***	11 1/2	3	4
19/32	***5.01***	8	2	1	1 3/8	***15.84***	12	3 1/4	4
5/8	***5.01***	9	2 1/4	2	1 7/16	***17.24***	12	3 1/4	4
21/32	***5.41***	9	2 1/4	2	1 1/2	***18.64***	12 1/2	3 1/2	4
11/16	***5.41***	9	2 1/4	2	.....	.....	....	...	..

*Prices on application.

No. 405RS Chicago-Latrobe Spiral Fluted Chucking Reamers

With Straight Shanks—*High Speed* Steel



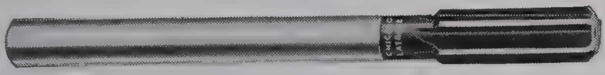
Diam. In.	Each	Diam. Shank In.	Lgth. Over-all In.	Lgth. Flute In.	Diam. In.	Each	Diam. Shank In.	Lgth. Over-all In.	Lgth. Flute In.
1/16	***$1.59***	.060-.059	2 1/2	1/2	31/64	***$3.82***	7/16	8	2
5/64	***1.59***	.076-.075	3	3/4	*1/2	***3.82***	7/16	8	2
3/32	***1.59***	.091-.090	3	3/4	*17/32	***4.64***	7/16	8	2
7/64	***1.59***	.107-.106	3 1/2	7/8	*9/16	***4.64***	7/16	8	2
*1/8	***1.59***	7/64	3 1/2	7/8	*19/32	***5.07***	7/16	8	2
9/64	***2.00***	1/8	4	1	*5/8	***5.07***	9/16	9	2 1/4
*5/32	***2.00***	9/64	4	1	21/32	***5.50***	9/16	9	2 1/4
11/64	***2.00***	5/32	4 1/2	1 1/8	11/16	***5.50***	9/16	9	2 1/4
*3/16	***2.00***	11/64	4 1/2	1 1/8	23/32	***5.96***	9/16	9	2 1/4
13/64	***2.40***	3/16	5	1 1/4	3/4	***5.96***	5/8	9 1/2	2 1/2
7/32	***2.40***	13/64	5	1 1/4	25/32	***6.40***	5/8	9 1/2	2 1/2
15/64	***2.40***	7/32	6	1 1/2	13/16	***6.40***	5/8	9 1/2	2 1/2
1/4	***2.40***	15/64	6	1 1/2	27/32	***7.04***	5/8	9 1/2	2 1/2
17/64	***2.61***	15/64	6	1 1/2	7/8	***7.04***	3/4	10	2 5/8
*9/32	***2.61***	15/64	6	1 1/2	29/32	***7.93***	3/4	10	2 5/8
19/64	***2.61***	9/32	6	1 1/2	15/16	***7.93***	3/4	10	2 5/8
*5/16	***2.61***	9/32	6	1 1/2	31/32	***8.80***	3/4	10	2 5/8
21/64	***3.01***	9/32	6	1 1/2	1	***8.80***	7/8	10 1/2	2 3/4
*11/32	***3.01***	9/32	6	1 1/2	1 1/16	***9.93***	7/8	10 1/2	2 3/4
23/64	***3.01***	5/16	7	1 3/4	1 1/8	***11.02***	7/8	11	2 7/8
*3/8	***3.01***	5/16	7	1 3/4	1 3/16	***12.14***	1	11	2 7/8
25/64	***3.42***	5/16	7	1 3/4	1 1/4	***13.47***	1	11 1/2	3
*13/32	***3.42***	5/16	7	1 3/4	1 5/16	***14.98***	1	11 1/2	3
27/64	***3.42***	3/8	7	1 3/4	1 3/8	***16.54***	1	12	3 1/4
*7/16	***3.42***	3/8	7	1 3/4	1 7/16	***18.08***	1 1/4	12	3 1/4
29/64	***3.82***	3/8	7	1 3/4	1 1/2	***19.64***	1 1/4	12 1/2	3 1/2
*15/32	***3.82***	3/8	7	1 3/4	.....	.....	...	....	..:

*Also available in left-hand spiral, right-hand cut.

CHICAGO-LATROBE PRODUCTS STOCKED IN SOUTH BEND ONLY

No. 405 Chicago-Latrobe Straight Fluted Chucking Reamers

***High Speed* Steel—With Straight Shank**



Diam. In.	Each	Diam. Shank Inches	Lgth. Over-all In.	Lgth. Flute In.	Diam. In.	Each	Diam Shank In.	Lgth. Over-all In.	Lgth. Flute In.
3/4	$1.82	.046-.045	2 3/4	1/2	27/64	$3.09	3/8	7	1 3/4
1/16	1.45	.060-.059	2 3/4	1/2	.4365	3.09	3/8	7	1 3/4
5/64	1.45	.076-.075	3	3/4	7/16	3.09	3/8	7	1 3/4
3/32	1.45	.091-.090	3	3/4	.4385	3.09	3/8	7	1 3/4
7/64	1.45	.107-.106	3 1/2	7/8	29/64	3.45	3/8	7	1 3/4
.124	1.45	.119-.118	3 1/2	7/8	15/32	3.45	3/8	7	1 3/4
1/8	1.45	7/64	3 1/2	7/8	31/64	3.45	7/16	8	2
.126	1.45	7/64	3 1/2	7/8	.499	3.45	7/16	8	2
9/64	1.82	1/8	4	1	1/2	3.45	7/16	8	2
5/32	1.82	9/64	4	1	.501	3.45	7/16	8	2
11/64	1.82	9/64	4 1/2	1 1/8	17/32	4.20	7/16	8	2
.1865	1.82	11/64	4 1/2	1 1/8	9/16	4.20	7/16	8	2
3/16	1.82	11/64	4 1/2	1 1/8	19/32	4.59	7/16	8	2
.1885	1.82	11/64	4 1/2	1 1/8	5/8	4.59	9/16	9	2 1/4
13/64	2.18	13/64	5	1 1/4	21/32	5.01	9/16	9	2 1/4
7/32	2.18	13/64	5	1 1/4	11/16	5.01	9/16	9	2 1/4
15/64	2.18	15/64	6	1 1/2	23/32	5.41	9/16	9	2 1/4
.249	2.18	15/64	6	1 1/2	3/4	5.41	5/8	9 1/2	2 1/2
1/4	2.18	15/64	6	1 1/2	25/32	5.80	5/8	9 1/2	2 1/2
.251	2.18	15/64	6	1 1/2	13/16	5.80	5/8	9 1/2	2 1/2
17/64	2.36	15/64	6	1 1/2	27/32	6.40	5/8	9 1/2	2 1/2
9/32	2.36	15/64	6	1 1/2	7/8	6.40	3/4	10	2 5/8
19/64	2.36	9/32	6	1 1/2	29/32	7.21	3/4	10	2 5/8
.3115	2.36	9/32	6	1 1/2	15/16	7.21	3/4	10	2 5/8
5/16	2.36	9/32	6	1 1/2	31/32	8.01	3/4	10	2 5/8
.3135	2.36	9/32	6	1 1/2	1	8.01	7/8	10 1/2	2 3/4
21/64	2.73	9/32	6	1 1/2	1 1/16	9.02	7/8	10 1/2	2 3/4
11/32	2.73	9/32	6	1 1/2	1 1/8	10.03	7/8	11	2 7/8
23/64	2.73	5/16	7	1 3/4	1 3/16	11.02	1	11	2 7/8
.374	2.73	5/16	7	1 3/4	1 1/4	12.22	1	11 1/2	3
3/8	2.73	5/16	7	1 3/4	1 5/16	13.63	1	11 1/2	3
.376	2.73	5/16	7	1 3/4	1 3/8	15.04	1	12	3 1/4
25/64	3.09	5/16	7	1 3/4	1 7/16	16.44	1 1/4	12	3 1/4
13/32	3.09	5/16	7	1 3/4	1 1/2	17.84	1 1/4	12 1/2	3 1/2

No. 400RS Chicago-Latrobe Spiral Fluted Chucking Reamers

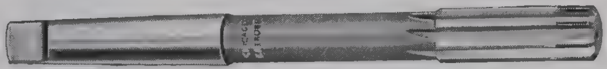
With Taper Shanks—*High Speed* Steel

Sizes not listed are special. Prices upon application.

Diam. In.	Each	Lgth. Overall In.	Lgth. Flute In.	Taper Shank No.	Diam. In.	Each	Lgth. Overall In.	Lgth. Flute In.	Taper Shank No.
1/4	$3.07	6	1 1/2	1	25/32	$7.04	9 1/2	2 1/2	2
9/32	3.31	6	1 1/2	1	13/16	7.04	9 1/2	2 1/2	2
5/16	3.31	6	1 1/2	1	27/32	7.93	9 1/2	2 1/2	2
11/32	3.75	6	1 1/2	1	7/8	7.93	10	2 5/8	2
3/8	3.75	7	1 3/4	1	29/32	8.80	10	2 5/8	2
13/32	4.20	7	1 3/4	1	15/16	8.80	10	2 5/8	3
7/16	4.20	7	1 3/4	1	31/32	9.69	10	2 5/8	3
15/32	4.64	7	1 3/4	1	1	9.69	10 1/2	2 3/4	3
1/2	4.64	8	2	1	1 1/16	10.82	10 1/2	2 3/4	3
17/32	5.07	8	2	1	1 1/8	11.90	11	2 7/8	3
9/16	5.07	8	2	1	1 3/16	13.03	11	2 7/8	3
19/32	5.50	8	2	1	1 1/4	14.34	11 1/2	3	4
5/8	5.50	9	2 1/4	2	1 5/16	15.87	11 1/2	3	4
21/32	5.96	9	2 1/4	2	1 3/8	17.44	12	3 1/4	4
11/16	5.96	9	2 1/4	2	1 7/16	18.96	12	3 1/4	4
23/32	6.40	9	2 1/4	2	1 1/2	20.53	12 1/2	3 1/2	4
3/4	6.40	9 1/2	2 1/2	2	.....	.....	....	...	.

No. 1400 Chicago-Latrobe Taper Shank Chucking Reamers

Carbide Tipped



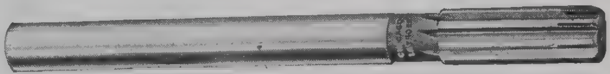
Body of High Speed Steel

Sizes Inches	Each	Taper Shank No.	Overall Length, Inches	Length Flute, Inches	No. Flutes
1/4	$8.66	1	6	1 1/2	4
9/32	9.16	1	6	1 1/2	4
5/16	9.16	1	6	1 1/2	4
11/32	9.45	1	6	1 1/2	4
3/8	9.64	1	7	1 3/4	4
13/32	9.84	1	7	1 3/4	4
7/16	10.15	1	7	1 3/4	4
15/32	10.42	1	7	1 3/4	4
1/2	10.63	1	8	2	6
17/32	11.02	1	8	2	6
9/16	11.41	1	8	2	6
19/32	11.41	1	8	2	6
5/8	11.61	2	9	2 1/4	6
21/32	11.81	2	9	2 1/4	6
11/16	12.12	2	9	2 1/4	6
23/32	12.39	2	9	2 1/4	6
3/4	12.60	2	9 1/2	2 1/2	6
25/32	12.99	2	9 1/2	2 1/2	6
13/16	13.10	2	9 1/2	2 1/2	6
27/32	13.38	2	9 1/2	2 1/2	6
7/8	13.57	2	10	2 5/8	6
29/32	13.78	2	10	2 5/8	6
15/16	14.09	3	10	2 5/8	8
31/32	14.36	3	10	2 5/8	8
1	14.56	3	10 1/2	2 3/4	8
1 1/16	15.46	3	10 1/2	2 3/4	8
1 1/8	16.23	3	11	2 7/8	8
1 3/16	17.24	3	11	2 7/8	8
1 1/4	18.11	4	11 1/2	3	8
1 5/16	19.09	4	11 1/2	3	8
1 3/8	20.08	4	12	3 1/4	8
1 7/16	21.06	4	12	3 1/4	8
1 1/2	22.05	4	12 1/2	3 1/2	8

Can be furnished with spiral flutes; prices on request.

No. 1405 Chicago-Latrobe Straight Shank Chucking Reamers

Carbide Tipped



Body of High Speed Steel

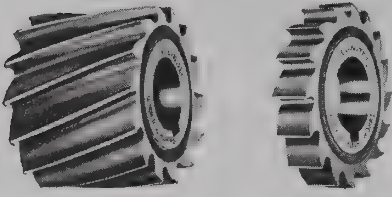
Diam. Inches	Each	Diam. Shank Inches	Length Flute Inches	No. of Flutes	Overall Length Inches
3/16	$7.87	11/64	1 1/8	4	4 1/2
7/32	7.87	13/64	1 1/4	4	5
1/4	7.87	15/64	1 1/2	4	6
9/32	8.38	15/64	1 1/2	4	6
5/16	8.38	9/32	1 1/2	4	6
11/32	8.66	9/32	1 1/2	4	6
3/8	8.85	5/16	1 3/4	4	7
13/32	9.05	5/16	1 3/4	4	7
7/16	9.37	3/8	1 3/4	4	7
15/32	9.64	3/8	1 3/4	4	7
1/2	9.84	7/16	2	6	8
17/32	10.23	7/16	2	6	8
9/16	10.63	7/16	2	6	8
19/32	10.63	7/16	2	6	8
5/8	10.82	9/16	2 1/4	6	9
21/32	11.02	9/16	2 1/4	6	9
11/16	11.34	9/16	2 1/4	6	9
23/32	11.61	9/16	2 1/4	6	9
3/4	11.81	5/8	2 1/2	6	9 1/2
25/32	12.20	5/8	2 1/2	6	9 1/2
13/16	12.31	5/8	2 1/2	6	9 1/2
27/32	12.60	5/8	2 1/2	6	9 1/2
7/8	12.79	3/4	2 5/8	6	10
29/32	12.99	3/4	2 5/8	6	10
15/16	13.30	3/4	2 5/8	8	10
31/32	13.57	3/4	2 5/8	8	10
1	13.78	7/8	2 3/4	8	10 1/2
1 1/16	14.68	7/8	2 3/4	8	10 1/2
1 1/8	15.54	7/8	2 7/8	8	11
1 3/16	16.45	1	2 7/8	8	11
1 1/4	17.32	1	3	8	11 1/2
1 5/16	18.30	1	3	8	11 1/2
1 3/8	19.29	1	3 1/4	8	12
1 7/16	20.27	1 1/4	3 1/4	8	12
1 1/2	21.26	1 1/4	3 1/2	8	12 1/2

Can be furnished with spiral flutes, prices on request.

Series 7300 Illinite Standard Plain Milling Cutters

***High Speed* Steel**

Light Duty



Cutters with less than ¾-inch face have straight flutes. Hollow face teeth, 20° left hand helix.

Cutters other than listed are special and subject to special prices.

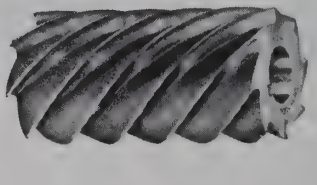
When ordering, state number or diameter, width of face and size of hole.

No.	Each	Diameter Inches	Width Face Inches	Size Hole Inches
7301	$3.75	2½	3/16	1
7302	4.96	2½	¼	1
7303	5.20	2½	5/16	1
7304	5.56	2½	⅜	1
7305	5.92	2½	7/16	1
7306	6.17	2½	½	1
7307	6.77	2½	⅝	1
7308	7.26	2½	¾	1
7309	8.34	2½	1	1
7310	10.40	2½	1½	1
7311	12.46	2½	2	1
7312	14.64	2½	2½	1
7313	16.57	2½	3	1
7314	4.59	3	3/16	1
7315	6.05	3	¼	1
7316	6.53	3	5/16	1
7317	6.89	3	⅜	1
7318	6.89	3	⅜	1¼
7319	7.26	3	7/16	1¼
7320	7.74	3	½	1¼
7321	8.34	3	⅝	1¼
7322	9.07	3	¾	1¼
7323	9.80	3	⅞	1¼
7324	10.52	3	1	1¼
7325	11.97	3	1¼	1¼
7326	13.31	3	1½	1¼
7327	16.21	3	2	1¼
7328	21.90	3	3	1¼
7329	8.59	4	¼	1
7330	8.59	4	¼	1¼
7331	9.31	4	5/16	1
7332	9.31	4	5/16	1¼
7333	9.92	4	⅜	1
7334	9.92	4	⅜	1¼
7335	11.25	4	½	1¼
7336	12.34	4	⅝	1¼
7337	13.55	4	¾	1¼
7338	15.85	4	1	1¼
7339	20.69	4	1½	1¼
7340	25.41	4	2	1¼
7341	34.96	4	3	1¼
7342	48.57	4	4	1¼
7343	15.50	6	¼	1¼
7344	16.75	6	5/16	1¼
7345	18.25	6	⅜	1¼
7346	19.62	6	7/16	1¼
7347	32.25	8	5/16	1¼
7348	37.75	8	7/16	1¼

Series 7400 Illinite Standard Plain Milling Cutters

***High Speed* Steel**

Heavy Duty



Hollow face teeth, 45° left hand helix.

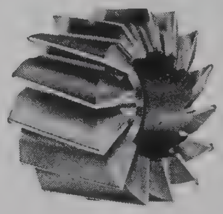
Cutters other than listed are special and subject to special prices.

When ordering, state catalog number or diameter, width of face and size of hole.

No.	Each	Diameter Inches	Width Face Inches	Size Hole Inches
7401	$13.02	2½	2	1
7402	21.88	2½	4	1
7403	16.95	3	2	1¼
7404	19.98	3	2½	1¼
7405	22.89	3	3	1¼
7406	28.84	3	4	1¼
7407	46.36	3	6	1¼
7408	26.56	4	2	1½
7409	36.55	4	3	1½
7410	50.78	4	4	1½
7411	74.38	4	6	1½
7412	91.49	4½	6	2

Series 7600 Illinite Standard Shell End Mills

***High Speed* Steel**



Right hand cut with right hand helix; left hand cut with left hand helix.

Has 10° hook, 15° helix.

Furnished with sharp corners. Beveled or radius corners can be furnished at a slight additional cost.

Right Hand No.	Left Hand No.	Each	Diam. In.	Width Face In.	Hole Diam. In.
7601	7651	$6.53	1¼	1	½
7602	7652	7.26	1½	1⅛	½
7603	7653	8.10	1¾	1¼	¾
7604	7654	9.31	2	1⅜	¾
7605	7655	10.89	2¼	1½	1
7606	7656	12.94	2½	1⅝	1
7607	7657	14.64	2¾	1⅝	1
7608	7658	17.18	3	1¾	1¼
7609	7659	23.23	3½	1⅞	1¼
7610	7660	30.85	4	2¼	1½
7611	7661	40.65	4½	2¼	1½
7612	7662	48.44	5	2¼	1½
7613	7663	55.57	5½	2¼	2
7614	7664	66.26	6	2¼	2

Series 7000 Illinite Standard Milling Cutters

High Speed **Steel**

Staggered Teeth

Designed for deep slotting work and heavy duty milling. The teeth are made with alternate right and left hand spiral, and the drag end of each tooth is cut away.

This construction together with the undercut teeth produces a cutter that can remove a large amount of metal.

The general sharpening clearance is 6° for cutters 3 inches and smaller, and 4° for cutters larger than 3 inches.

The side teeth are not sharpened, but have a slight back clearance which enables them to maintain size longer than ordinary side milling cutters.

Has 10° hook, 10° right and left hand teeth.

Keyways located so hubs may be ground for interlocking.

Sizes and dimensions not listed are special.

No.	Each	Diam. In.	Width Face In.	Size Hole In.	No.	Each	Diam. In.	Width Face In.	Size Hole In.
8101	*	2 1/8	3/16	3/4	8115	*	3 1/2	11/16	1
8102	*	2 1/8	1/4	3/4	8116	*	3 1/2	3/4	1
8103	*	2 1/8	5/16	3/4	7012	**$13.67**	4	1/4	1 1/4
8104	*	2 1/8	3/8	3/4	7013	**14.52**	4	5/16	1 1/4
7001	**$8.22**	2 1/2	1/4	7/8	7014	**15.24**	4	3/8	1 1/4
7002	**8.59**	2 1/2	5/16	7/8	7015	**16.21**	4	7/16	1 1/4
7003	**9.07**	2 1/2	3/8	7/8	7016	**17.06**	4	1/2	1 1/4
7004	**10.04**	2 1/2	1/2	7/8	7017	**18.63**	4	5/8	1 1/4
8105	*	2 3/4	1/4	1	7018	**20.08**	4	3/4	1 1/4
8106	*	2 3/4	5/16	1	7019	**21.65**	4	7/8	1 1/4
8107	*	2 3/4	3/8	1	7020	**22.86**	5	1/2	1 1/4
8108	*	2 3/4	7/16	1	7021	**25.28**	5	5/8	1 1/4
8109	*	2 3/4	1/2	1	7022	**27.58**	5	3/4	1 1/4
7005	**9.43**	3	3/16	1	7023	**26.37**	6	3/8	1 1/4
7006	**9.80**	3	1/4	1	7024	**29.76**	6	1/2	1 1/4
7007	**10.40**	3	5/16	1	7025	**33.03**	6	5/8	1 1/4
7008	**10.89**	3	3/8	1	7026	**36.30**	6	3/4	1 1/4
7009	**12.10**	3	1/2	1 1/4	7027	**43.29**	6	7/8	1 1/4
7010	**13.06**	3	5/8	1 1/4	7028	**46.86**	6	1	1 1/4
7011	**13.91**	3	3/4	1 1/4	7029	**55.96**	8	3/8	1 1/2
8110	*	3 1/2	3/8	1	7030	**62.56**	8	1/2	1 1/2
8111	*	3 1/2	7/16	1	7031	**69.03**	8	5/8	1 1/2
8112	*	3 1/2	1/2	1	7032	**75.37**	8	3/4	1 1/2
8113	*	3 1/2	9/16	1	7033	**83.53**	8	7/8	1 1/2
8114	*	3 1/2	5/8	1	7034	**90.11**	8	1	1 1/2

*Prices on request.

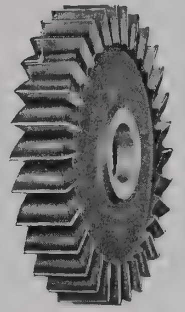
SPECIAL GEAR HOBS

We can supply gear hobs to meet your requirements.

★

Please phone or write for information.

Illinite Standard Side Milling Cutters



High Speed **Steel**

12° Hook

Cutters other than listed are special and subject to special prices.

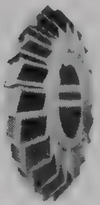
No.	Each	Diameter Inches	Width Face Inches	Size Hole Inches
7101	**$5.08**	2	3/16	1/2
7102	**5.08**	2	3/16	5/8
7103	**5.32**	2	1/4	1/2
7104	**5.32**	2	1/4	5/8
7105	**5.80**	2	3/8	1/2
7106	**5.80**	2	3/8	5/8
7107	**6.53**	2 1/2	1/4	7/8
7108	**6.89**	2 1/2	5/16	7/8
7109	**7.26**	2 1/2	3/8	7/8
7110	**7.98**	2 1/2	1/2	7/8
7111	**7.86**	3	1/4	1
7112	**8.34**	3	5/16	1
7113	**8.71**	3	3/8	1
7114	**9.19**	3	7/16	1
7115	**9.68**	3	1/2	1
7116	**10.89**	4	1/4	1
7117	**12.22**	4	3/8	1
7118	**13.67**	4	1/2	1
7119	**13.67**	4	1/2	1 1/4
7120	**14.88**	4	5/8	1
7121	**14.88**	4	5/8	1 1/4
7122	**16.09**	4	3/4	1
7123	**16.09**	4	3/4	1 1/4
7124	**17.30**	4	7/8	1
7125	**17.30**	4	7/8	1 1/4
7126	**18.27**	5	1/2	1
7127	**18.27**	5	1/2	1 1/4
7128	**20.20**	5	5/8	1
7129	**20.20**	5	5/8	1 1/4
7130	**22.02**	5	3/4	1
7131	**22.02**	5	3/4	1 1/4
7132	**25.77**	5	1	1 1/4
7133	**23.83**	6	1/2	1
7134	**23.83**	6	1/2	1 1/4
7135	**26.37**	6	5/8	1 1/4
7136	**29.04**	6	3/4	1
7137	**29.04**	6	3/4	1 1/4
7138	**32.75**	6	7/8	1 1/4
7139	**34.36**	6	1	1 1/4
7140	**45.40**	7	3/4	1 1/4
7141	**53.19**	7	1	1 1/4
7142	**60.32**	8	3/4	1 1/4
7143	**66.82**	8	7/8	1 1/4
7144	**70.48**	8	1	1 1/4

Series 7800 Illinite Standard Double Angle Milling Cutters

High Speed **Steel**

Diameter, 2 3/4 inches. Thickness, 1/2 inch. Size of hole, 1 inch.

When ordering state number and angle required.

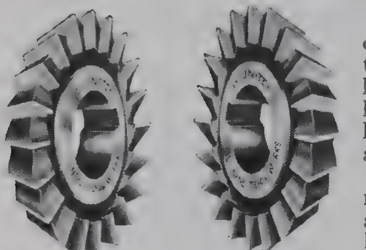


No.	Each	Incl. Angle Deg.
7801	**$9.09**	45
7802	**9.09**	60
7803	**9.09**	90

Series 7700 Illinite Standard Single Angle Milling Cutters

High Speed **Steel**

Plain Hole and Keyway



This cutter has teeth on angular face and on the side adjacent to the largest diameter. Regularly furnished right or left-hand with included angle to 45 or 60 degrees.

When ordering, state number, angle of cutter and whether right or left-hand.

Right Hand No.	Left Hand No.	Each	Diam. In.	Width Face In.	Hole Diam. In.
45° Included Angle					
7701	7751	**$8.32**	2 1/2	1/2	7/8
7702	7752	**9.09**	2 3/4	1/2	1
7703	7753	**10.10**	3	1/2	1 1/4
60° Included Angle					
7704	7754	**$8.32**	2 1/2	1/2	7/8
7705	7755	**9.09**	2 3/4	1/2	1
7706	7756	**10.10**	3	1/2	1 1/4

Series 9000 Illinite Standard Convex Milling Cutters

High Speed **Steel**

Can be sharpened with 5° hook by grinding faces of teeth without changing form.

Do not confuse diameter of circle (below) with radius.

When ordering, state number, or diameter of circle—also diameter of cutter and size of hole.

No.	Each	Circle Diam. In.	Cutter Diam. In.	Width Face In.	Hole Diam. In.	No.	Each	Circle Diam. In.	Cutter Diam. In.	Width Face In.	Hole Diam. In.
9001	**$9.09**	1/8	2 1/4	1/8	1	9007	**$14.74**	1/2	3	1/2	1
9002	**9.09**	3/16	2 1/4	3/16	1	9008	**18.46**	5/8	3 1/2	5/8	1 1/4
9003	**10.47**	1/4	2 1/2	1/4	1	9009	**21.37**	3/4	3 3/4	3/4	1 1/4
9004	**11.85**	5/16	2 3/4	5/16	1	9010	**24.54**	7/8	4	7/8	1 1/4
9005	**12.40**	3/8	2 3/4	3/8	1	9011	**28.12**	1	4 1/4	1	1 1/4
9006	**14.05**	7/16	3	7/16	1	....	.....	..	..	...	..

Series 9100 Illinite Standard Concave Milling Cutters

High Speed **Steel**

Sharpened with 5° hook.

Diameter of circle which cutter produces is within standard cutter tolerance.

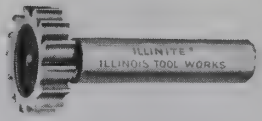
Sizes and dimensions not listed are special.

No.	Each	Circle Diam. In.	Cutter Diam. In.	Width Face In.	Hole Diam. In.	No.	Each	Circle Diam. In.	Cutter Diam. In.	Width Face In.	Hole Diam. In.
9101	**$9.50**	1/8	2 1/4	1/4	1	9107	**$17.50**	1/2	3	13/16	1
9102	**10.34**	3/16	2 1/4	3/8	1	9108	**22.06**	5/8	3 1/2	1	1 1/4
9103	**11.85**	1/4	2 1/2	7/16	1	9109	**26.62**	3/4	3 3/4	1 3/16	1 1/4
9104	**14.33**	5/16	2 3/4	9/16	1	9110	**30.47**	7/8	4	1 3/8	1 1/4
9105	**14.33**	3/8	2 3/4	5/8	1	9111	**36.26**	1	4 1/4	1 9/16	1 1/4
9106	**16.54**	7/16	3	3/4	1	....	.....	..	..	...	..

Series 8000 Illinite Standard Woodruff Keyslot Milling Cutters

High Speed **Steel**

Shank Type



These cutters have uniform shank 1/2 inch in diameter.

Keys and cutters correspond in size and number with the exceptions as noted at the bottom of the page.

Sides are ground slightly concave for clearance. They are regularly furnished right-hand only 10° hook.

Left-hand cutters or cutters other than listed are special and subject to special prices.

Illinite No.	*American Standard No.	Each	Diam. In.	Width Face In.	Length Overall In.
8001	202	**$4.01**	1/4	1/16	2 1/16
8002	202 1/2	**4.01**	5/16	1/16	2 1/16
8003	302 1/2	**4.01**	5/16	3/32	2 3/32
8004	203	**4.01**	3/8	1/16	2 1/16
8005	303	**4.01**	3/8	3/32	2 3/32
8006	403	**4.01**	3/8	1/8	2 1/8
8007	204	**3.21**	1/2	1/16	2 1/16
8008	304	**3.21**	1/2	3/32	2 3/32
8009	305	**3.21**	5/8	3/32	2 3/32
8010	404	**3.21**	1/2	1/8	2 1/8
8011	405	**3.21**	5/8	1/8	2 1/8
8012	406	**3.55**	3/4	1/8	2 1/8
8013	505	**3.21**	5/8	5/32	2 5/32
8014	605	**3.21**	5/8	3/16	2 3/16
8015	506	**3.55**	3/4	5/32	2 5/32
8016	806	**3.55**	3/4	1/4	2 1/4
8017	507	**3.90**	7/8	5/32	2 5/32
8018	606	**3.55**	3/4	3/16	2 3/16
8019	607	**3.90**	7/8	3/16	2 3/16
8020	707	**3.90**	7/8	7/32	2 7/32
8021	608	**4.36**	1	3/16	2 3/16
8022	708	**4.36**	1	7/32	2 7/32
8023	1208	**4.81**	1	3/8	2 3/8
8024	609	**4.81**	1 1/8	3/16	2 3/16
8025	807	**3.90**	7/8	1/4	2 1/4
8026	808	**4.36**	1	1/4	2 1/4
8027	709	**4.81**	1 1/8	7/32	2 7/32
8028	809	**4.81**	1 1/8	1/4	2 1/4
8029	610	**5.28**	1 1/4	3/16	2 3/16
8030	710	**5.28**	1 1/4	7/32	2 7/32
8031	810	**5.28**	1 1/4	1/4	2 1/4
8032	811	**5.74**	1 3/8	1/4	2 1/4
8033	812	**6.31**	1 1/2	1/4	2 1/4
8034	1008	**4.59**	1	5/16	2 5/16
8035	1009	**5.04**	1 1/8	5/16	2 5/16
8036	1010	**5.63**	1 1/4	5/16	2 5/16
8037	1011	**6.20**	1 3/8	5/16	2 5/16
8038	1012	**6.77**	1 1/2	5/16	2 5/15
8039	1210	**5.63**	1 1/4	3/8	2 3/8
8040	1211	**6.20**	1 3/8	3/8	2 3/8
8041	1212	**6.77**	1 1/2	3/8	2 3/8

*The cutter numbers shown under this column indicate the nominal key dimension or size cutter, that is, the last two digits give the nominal diameter in 8ths of an inch and the digits preceding the last two give the nominal width in 32nds of an inch. Thus cutter No. 204 indicates a size 2/32x4/8 inches or 1/16x1/2 inch diameter.

Cutter No. 1210 indicates a size 3/8 inch thick x 1 1/4 inch diameter.

EXCEPTIONS.—The following table gives the exceptions.

For Key No.	121	141	131	161
Use Cutter No.	807	808	1008	1009

ILLINOIS END MILLS STOCKED IN SOUTH BEND ONLY

Series 6000 Illinite Standard Plain Metal Slitting Saws

***High Speed* Steel**

Hollow Face Teeth

Saws of 3-inch diameter and over furnished with hubs; under 3-inch diameter supplied with clearance to the hole.

The general sharpening clearance on metal slitting saws is 4° to 5°, and for non-ferrous metals 10° to 15° is used.

When ordering, special saws, state type of saw required, kind of material to be cut, and depth and width of slot with allowable limits, all of which are determining factors for the proper design of saws.

No.	Each	Diam. In.	Width Face In.	Size Hole In.	No.	Each	Diam. In.	Width Face In.	Size Hole In.
6001	**$2.92**	2 1/2	1/32	7/8	6020	**$6.57**	5	3/32	1
6002	**2.92**	2 1/2	3/64	7/8	6021	**6.89**	5	1/8	1
6003	**2.92**	2 1/2	1/16	7/8	6022	**6.89**	5	1/8	1 1/4
6004	**2.92**	2 1/2	3/32	7/8	6023	**7.31**	5	5/32	1
6005	**3.02**	2 1/2	1/8	7/8	6024	**7.73**	5	3/16	1
6006	**3.44**	3	1/32	1	6025	**7.62**	6	1/16	1
6007	**3.44**	3	3/64	1	6026	**8.77**	6	3/32	1
6008	**3.55**	3	1/16	1	6027	**8.98**	6	1/8	1
6009	**3.55**	3	3/32	1	6028	**8.98**	6	1/8	1 1/4
6010	**3.65**	3	1/8	1	6029	**10.86**	6	3/16	1
6011	**3.86**	3	5/32	1	6030	**10.86**	6	3/16	1 1/4
6012	**4.48**	4	1/32	1	6031	**18.28**	8	1/8	1
6013	**4.59**	4	3/64	1	6032	**18.28**	8	1/8	1 1/4
6014	**4.69**	4	1/16	1	6033	**20.69**	8	3/16	1 1/4
6015	**4.90**	4	3/32	1	6034	**33.44**	10	3/16	1 1/4
6016	**5.22**	4	1/8	1	6035	**48.19**	10	1/4	1 1/4
6017	**5.43**	4	5/32	1	6036	**66.69**	12	1/4	1 1/2
6018	**5.74**	4	3/16	1	6037	**74.52**	12	5/16	1 1/2
6019	**6.06**	5	1/16	1	....	.....	..	..	...

Series 6200 Illinite Standard Metal Slitting Saws

***High Speed* Steel**

Staggered Teeth

Has 10° hook, 10° right and left hand teeth. Saws other than listed are special and subject to special prices. **When ordering,** specify number, or diameter, width and size of hole.

No.	Each	Diam. In.	Width Face In.	Hole Diam. In.	No.	Each	Diam. In.	Width Face In.	Hole Diam. In.
6201	**$8.15**	3	3/16	1	6208	**$19.74**	6	1/4	1 1/4
6202	**11.28**	4	3/16	1	6209	**37.92**	8	3/16	1 1/4
6203	**14.63**	5	3/16	1	6210	**39.08**	8	1/4	1 1/4
6204	**15.46**	5	1/4	1	6211	**60.50**	10	3/16	1 1/4
6205	**19.32**	6	3/16	1	6212	**79.14**	10	1/4	1 1/4
6206	**19.32**	6	3/16	1 1/4	6213	**107.66**	12	1/4	1 1/2
6207	**19.74**	6	1/4	1	6214	**117.45**	12	5/16	1 1/2

Series 4900 Illinite Standard Plain Straight Shank End Mills

***High Speed* Steel**

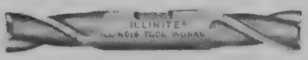
Four Flutes

Furnished right hand only.

No.	Each	Diam. In.	Lgth. Over-all In.	No.	Each	Diam. In.	Lgth. Over-all In.
4901	**$1.69**	1/8	1 1/4	4907	**$2.54**	3/8	1 13/16
4902	**1.81**	5/32	1 1/4	4908	**2.78**	7/16	2 3/16
4903	**2.05**	3/16	1 3/8	4909	**3.02**	1/2	2 1/4
4904	**2.17**	7/32	1 5/8	4910	**3.26**	9/16	2 5/16
4905	**2.17**	1/4	1 11/16	4911	**3.63**	5/8	2 1/2
4906	**2.29**	5/16	1 3/4	4912	**4.23**	3/4	2 5/8

Series 2400 Illinite Standard Fast Helix Two-Flute Double-End End Mills

***High Speed* Steel**

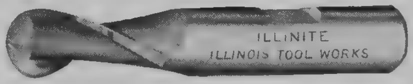


Flatted straight shank.
Furnished right hand only.

No.	Each	Cutter Diam. In.	Shank Diam. In.	Overall Length In.
2401	**$3.19**	1/8	3/8	3 1/16
2402	**3.19**	5/32	3/8	3 1/8
2403	**3.19**	3/16	3/8	3 1/8
2404	**3.19**	7/32	3/8	3 1/16
2405	**3.19**	1/4	3/8	3 1/8
2406	**3.19**	9/32	3/8	3 1/8
2407	**3.19**	5/16	3/8	3 1/16
2408	**3.19**	11/32	3/8	3 1/8
2409	**3.19**	3/8	3/8	3 1/8
2410	**4.18**	13/32	1/2	3 3/4
2411	**4.18**	7/16	1/2	3 3/4
2412	**4.18**	15/32	1/2	3 3/4
2413	**4.18**	1/2	1/2	3 3/4
2414	**5.28**	9/16	5/8	4 1/2
2415	**5.28**	5/8	5/8	4 1/2
2416	**6.60**	11/16	3/4	5
2417	**6.60**	3/4	3/4	5
2418	**8.19**	13/16	7/8	5 1/2
2419	**8.19**	7/8	7/8	5 1/2
2420	**9.68**	15/16	1	5 7/8
2421	**9.68**	1	1	5 7/8

Series 2800 Illinite Ball-End Fast Helix Two-Flute Single-End End Mills

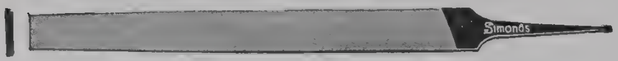
***High Speed* Steel**



Flatted straight shank. Furnished right hand only.

No.	Each	Cutter & End Circle Diam. In.	Shank Diam. In.	Lgth. Over-all In.	No.	Each	Cutter & End Circle Diam. In.	Shank Diam. In.	Lgth. Over-all In.
2801	**$2.75**	1/8	3/8	2 5/16	2820	**$7.56**	1	5/8	3 5/8
2802	**2.75**	3/16	3/8	2 5/16	2821	**5.83**	3/4	3/4	3 9/16
2803	**2.75**	1/4	3/8	2 5/16	2822	**7.26**	7/8	7/8	3 3/4
2804	**3.02**	5/16	3/8	2 5/16	2823	**7.56**	15/16	7/8	3 3/4
2805	**3.02**	3/8	3/8	2 5/16	2824	**7.56**	1	7/8	3 3/4
2806	**3.48**	7/16	3/8	2 1/2	2825	**9.84**	1 1/8	7/8	3 7/8
2807	**3.48**	1/2	3/8	2 1/2	2826	**11.36**	1 1/4	7/8	3 7/8
2808	**3.79**	7/16	1/2	3	2827	**8.80**	1	1	4 1/8
2809	**3.79**	1/2	1/2	3	2828	**10.01**	1 1/8	1	4 1/8
2810	**4.44**	9/16	1/2	3 1/8	2829	**11.36**	1 1/4	1	4 1/8
2811	**4.84**	5/8	1/2	3 1/8	2830	**12.76**	1 3/8	1	4 1/8
2812	**5.25**	11/16	1/2	3 5/16	2831	**14.08**	1 1/2	1	4 1/8
2813	**5.64**	3/4	1/2	3 5/16	2832	**11.66**	1 1/4	1 1/4	4 1/8
2814	**4.89**	5/8	5/8	3 7/16	2833	**14.24**	1 1/2	1 1/4	4 1/8
2815	**5.28**	11/16	5/8	3 7/16	2834	**15.73**	1 5/8	1 1/4	4 1/8
2816	**5.68**	3/4	5/8	3 7/16	2835	**17.10**	1 3/4	1 1/4	4 1/8
2817	**6.77**	13/16	5/8	3 5/8	2836	**18.53**	1 7/8	1 1/4	4 1/8
2818	**6.77**	7/8	5/8	3 5/8	2837	**23.54**	2	1 1/4	4 1/8
2819	**7.56**	15/16	5/8	3 5/8	....	.....	...	...	...

Simonds Red Tang Mill Files



Edges not safe.

Lgth. In.	Width In.	Thick In.	No. in Box	Approx. Wt., Lb. per Doz.	Lgth. In.	Width In.	Thick In.	No. in Box	Approx. Wt., Lb. per Doz.
4	7/16	5/64	12	1/4	10	1	3/16	12	5 1/4
6	5/8	1/8	12	1	12	1 3/16	7/32	6	9
7	45/64	1/8	12	1 3/4	14	1 3/8	1/4	6	13 1/4
8	13/16	5/32	12	2 5/8	16	1 17/32	9/32	6	20

Bastard

Length....in.	4	6	7	8	10	12	14	16
Per Dozen...	$4.60	5.30	5.90	6.50	8.40	11.20	16.00	22.00

Smooth

Length..........inches	6	8	10	12	14
Per Dozen............	$6.80	8.10	10.50	14.00	19.60

Second Cut

Length..........inches	6	8	10	12	14
Per Dozen............	$6.00	7.30	9.50	12.80	18.20

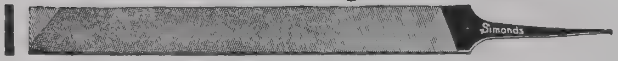
One Round Edge—Bastard

Length..................inches	6	8	10	12
Per Dozen....................	$5.90	7.20	9.40	12.50

Two Round Edges—Bastard

Length..................inches	6	8	10
Per Dozen....................	$6.60	8.10	10.50

Simonds Red Tang Hand Files



Made with one safe uncut edge. Used mainly on flat surfaces.

Length Inches	Dimensions Inches	No. in Box	Wt., Lb. per Doz.	Length Inches	Dimensions Inches	No. in Box	Wt. Lb. per Doz.
6	5/8 x5/32	12	2	12	1 3/16x17/64	6	12 1/2
8	13/16x7/32	12	4 1/2	14	1 3/8x19/64	6	21 3/4
10	1 x1/4	6	8 3/4	..	....	.	....

Bastard

Length..........inches	6	8	10	12	14
Per Dozen............	$6.80	8.40	11.70	16.80	23.50

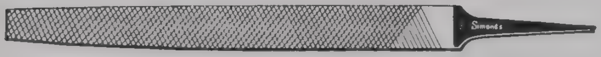
Second Cut

Length..........inches	6	8	10	12	14
Per Dozen............	$8.00	9.80	13.60	19.20	26.60

Smooth

Length..........inches	6	8	10	12	14
Per Dozen............	$8.80	10.50	14.70	21.10	28.50

Simonds Red Tang Flat Files



Edges not safe.

Lgth. In.	Width In.	Thick In.	No. in Box	Approx. Wt., Lb. per Doz.	Lgth. In.	Width In.	Thick In.	No. in Box	Approx. Wt., Lb. per Doz.
4	7/16	7/64	12	1/2	12	1 3/16	17/64	6	11 3/4
6	5/8	5/32	12	1 1/2	14	1 3/8	19/64	6	17 3/4
8	13/16	7/32	12	3 1/4	16	1 17/32	11/32	6	25 3/4
10	1	1/4	6	7	18	1 23/32	23/64	6	30 1/4

Bastard

Length..in.	4	6	8	10	12	14	16	18
Per Dozen.	$5.80	6.80	8.30	11.00	15.20	20.80	27.80	37.40

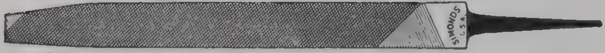
Second Cut

Length....inches	4	6	8	10	12	14	16
Per Dozen.......	$6.80	7.50	9.50	12.70	17.20	24.00	31.50

Smooth

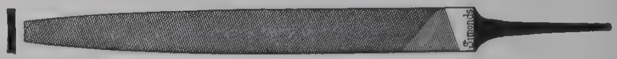
Length...inches	4	6	8	10	12	14	16
Per Dozen......	$7.40	8.30	10.30	13.60	18.90	26.20	34.80

Simonds Red Tang Safe Edge Knife Files



Length.............inches	4	6	8	10
Bastard.........per dozen	$8.40	$10.80	$13.30	$15.70
Second Cut......per dozen	9.50	11.70	14.30	18.00
Smooth..........per dozen	9.90	12.40	14.80	19.20
Dimensions.........inches	15/32x7/64	11/16x5/32	7/8x3/16	1 1/16x1/4
Wt., 12 in a Box....pounds	1/4	1	2 3/4	4 1/2

Simonds Red Tang Warding Files



Edges not safe.

Lgth. In.	Dimen. In.	No. in Box	Wt. Lb. per Doz.	Lgth. In.	Dimen. In.	No. in Box	Wt., Lb. per Doz.
4	7/16x1/16	12	1/4	8	25/32x3/32	12	1 1/2
6	5/8x5/64	12	3/4	10	15/16x1/8	12	3

Bastard

Length..................inches	4	6	8	10
Per Dozen...................	$6.20	7.60	9.90	13.60

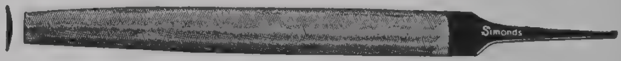
Second Cut

Length................inches	4	6	8	10
Per Dozen...................	$7.50	9.30	11.70	15.70

Smooth

Length................inches	4	6	8	10
Per Dozen...................	$8.40	9.90	12.90	17.20

Simonds Red Tang Half-Round Files



Edges not safe.

Lgth. In.	Width In.	Thick. In.	No. in Box	Approx. Wt., Lb. per Doz.	Lgth In.	Width In.	Thick. In.	No. in Box	Approx. Wt., Lb. per Doz.
4	7/16	1/8	12	1/2	12	1 1/8	11/32	6	10 1/2
6	5/8	5/32	12	1 1/2	14	1 5/16	13/32	6	14 1/2
8	3/4	7/32	12	3	16	1 1/2	29/64	6	23
10	15/16	9/32	6	5 3/4	..	...	...	.	....

Bastard

Length..inches	4	6	8	10	12	14	16
Per Dozen.....	$7.50	9.50	11.70	14.30	18.40	24.20	32.20

Second Cut

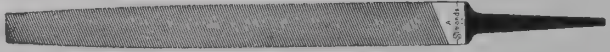
Length........inches	4	6	8	10	12	14
Per Dozen..........	$8.80	10.60	13.00	15.70	20.40	26.60

Smooth

Length..inches	4	6	8	10	12	14	16
Per Dozen.....	$9.50	11.10	13.90	16.80	21.80	28.60	37.90

Simonds Red Tang Files

For Aluminum



Unsafe edges. Sizes 10-inch and over packed 6 in a box; sizes under 10-inch, 12 in a box.

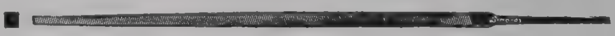
Flat

Length....inches	6	8	10	12	14
Per Dozen.......	$8.30	11.00	13.30	17.20	22.70
Dimensions...in.	5/8x5/32	13/16x7/32	1x1/4	1 3/16x17/64	1 3/8x19/64
Approx. Wt. per Dozen......lb.	1 1/2	3 1/2	7	11	16 1/4

Half Round

Length....inches	6	8	10	12	14
Per Dozen.......	$16.50	18.80	21.10	25.00	31.30
Dimensions...in.	5/8x5/32	3/4x7/32	15/16x9/32	1 1/8x11/32	1 5/16x13/32
Approx. Wt. per Doz.........lb.	1 1/2	3 1/4	5 3/4	10 3/4	15 1/2

Simonds Red Tang Square Files



Lgth. In.	Size In.	No. in Box	Approx. Wt., Lb. per Doz.	Lgth. In.	Size In.	No. in Box	Approx. Wt., Lb. per Doz.
4	3/16	12	1/4	12	1/2	6	8
6	1/4	12	1	14	5/8	6	15
8	5/16	12	1 1/2	16	3/4	6	25
10	3/8	12	3 1/2	..	..	..	..

Bastard

Length........in.	4	6	8	10	12	14	16
Per Dozen.......	$5.90	7.20	8.60	11.60	15.90	21.80	29.40

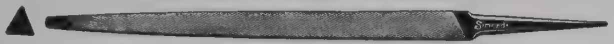
Second Cut

Length....inches	4	6	8	10	12	14
Per Dozen.......	$7.20	8.00	9.80	13.30	18.00	25.10

Smooth

Length...inches	4	6	8	10	12	14
Per Dozen......	$7.60	8.60	11.00	14.30	20.10	27.40

Simonds Red Tang Three Square Files



Length....inches	6	8	10	12
Size....inches	½	⅝	¾	⅞
No. in Box....	12	12	12	6
Approx. Wt. per Doz. pounds	2	4½	7½	13¼

Bastard

Length....inches	6	8	10	12
Per Dozen....	$9.50	11.70	14.30	18.40

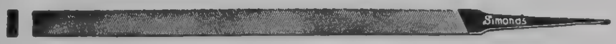
Second Cut

Length....inches	6	8	10	12
Per Dozen....	$10.60	13.00	15.70	20.40

Smooth

Length....inches	6	8	10	12
Per Dozen....	$11.10	13.90	16.80	21.80

Simonds Red Tang Pillar Files



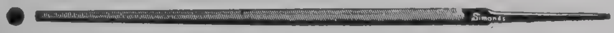
Used in machine shops on narrow work such as slots and keyways.

Pillar files are tapered in thickness but not in width. Narrower than the hand file.

One safe edge, and one uncut edge.

Size....inches	6	8	10	12
Bastard....per dozen	$6.80	$8.40	$11.70	$16.80
Second Cut....per dozen	8.00	9.80	13.60	.....
Smooth....per dozen	8.80	10.60	14.70	.....
Dimensions....inches	7/16x7/32	9/16x9/32	11/16x11/32	13/16x13/32
No. in Box....	12	12	12	6
Approx. Wt. per Doz. .lb.	1½	1¾	6¾	11¼

Simonds Red Tang Round Files



Lgth. In.	Diam. In.	No. in Box	Approx. Wt., Lb. per Doz.	Lgth. In.	Width In.	No. in Box	Approx. Wt., Lb. per Doz.
4	3/16	12	¼	10	⅜	12	2¾
6	¼	12	¾	12	½	6	6
7	17/64	12	1	14	⅝	6	11¾
8	5/16	12	1½	16	¾	6	20¼

Bastard

Length....in.	4	6	7	8	10	12	14	16
Per Dozen...	$4.80	5.50	6.10	6.80	8.80	11.70	16.80	23.00

Second Cut

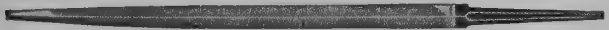
Length.....inches	4	6	8	10	12	14
Per Dozen....	$5.50	6.20	7.60	9.90	13.40	19.10

Smooth

Length....inches	4	6	8	10	12	14
Per Dozen....	$6.10	7.10	8.40	11.00	14.70	20.50

Simonds Red Tang Slim Taper Files

Single Cut

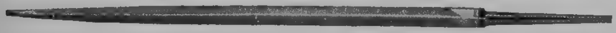


For sharpening hand and buck saws. Corners are cut with one row of teeth to eliminate corners or angles in the gullets of saws. Packed 12 in a box.

Length....in.	4	5	6	7	8	10
Per Dozen....	$3.40	3.80	4.70	5.70	6.80	9.50
Side....in...	¼	5/16	⅜	13/32	½	19/32

Simonds Red Tang Extra Slim Taper Files

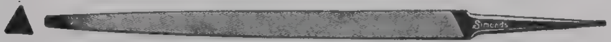
Single Cut



For filing fine tooth hand saws with 8 to 14 teeth per inch. Corners are cut with one row of teeth to eliminate corners or angles in the gullets of saws. Packed 12 in a box.

Length......in.	4	5	5½	6	7	8
Per Dozen....	$3.40	3.80	4.40	4.70	5.70	6.80
Side....in.	3/16	7/32	¼	9/32	11/32	13/32

Simonds Red Tang Taper Saw Files



No. in box: 10 inches, 6; under 10 inches, 12.

Taper

Length....inches	6	7	8	10
Per Dozen....	$5.10	6.50	8.10	12.10
Size....inches	½	9/16	⅝	¾
Approx. Wt. per Doz.....pounds	1¾	3	3¾	7¼

Slim

Length....inches	4	5	6	7	8	10
Per Dozen....	$3.40	3.80	4.70	5.70	6.80	9.50
Size....inches	¼	5/16	⅜	13/32	½	19/32
Approx. Wt. Doz. .lb.	¼	½	1	1½	2¾	7¼

Extra Slim

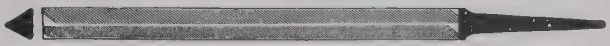
Length....inches	4	5	5½	6	7	8
Per Dozen....	$3.40	3.80	4.40	4.70	5.70	6.80
Size....inches	3/16	7/32	¼	9/32	11/32	13/32
Approx. Wt. Doz. .lb.	¼	⅜	⅜	½	1	1½

Double Extra Slim

Length....inches	4	5	6	7	8
Per Dozen....	$3.40	3.80	4.70	5.70	6.80
Size....inches	5/32	3/16	7/32	¼	5/16
Approx. Wt. Doz.....lb.	¼	⅜	½	¾	1

Simonds Red Tang Band Saw Blunt Files

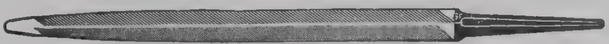
Single Cut



Packed 12 in a box.

	Regular		Slim	
Length....inches	6	8	6	8
Per Dozen....	$7.10	10.10	5.90	8.00
Dimensions....inches	½	⅝	⅜	½
Weight per Dozen....pounds	2	4½	1¼	3

No. 456 Simonds Special Narrow Band Saw Files



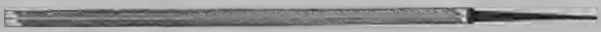
Specially made with well rounded corners to keep bottom of gullets round in narrow band saw blades.

For 4, 5 and 6-tooth saws. Width, ⅜ inch.

Length....inches	6	7
No. 456....per dozen	$5.90	6.80

Simonds Red Tang Special Handsaw Files

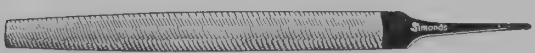
Single Cut



Designed especially for use on handsaws. Has cut edges or corners to maintain round saw gullets.

Length....inches	5½	6	7
Each....	$5.70	6.80	8.10
Side....inches	¼	9/32	11/32

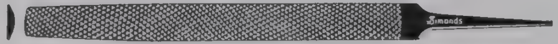
Simonds Red Tang Half Round Babbitt Files



For use on lead, babbitt, and other soft materials.

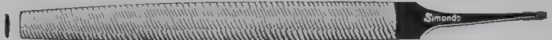
Length....inches	8	10	12
Per Dozen....	$13.30	16.80	22.00

Simonds Half Round Wood Rasps



Length..inches	6	8	10	12	14	16
Bastard...doz.	$12.70	$15.70	$21.40	$29.40	$38.80	$51.40
Smooth....doz.	.....	21.40	29.40	38.80	.....	.....
No. in Box.....	12	12	6	6	6	6

Simonds Cabinet Rasps



Under 10-inch, 12 in a box; 10-inch and over, 6 in box.

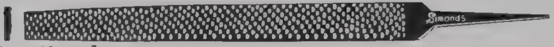
Second Cut

Length....inches	6	8	10	12	14
Per Dozen.......	$15.70	20.10	27.40	35.70	46.40

Smooth

Length....inches	6	8	10	12	14
Per Dozen.......	$18.30	24.20	32.40	41.90	53.00

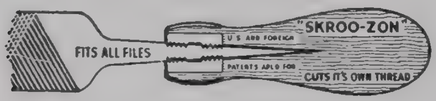
Simonds Flat Wood Rasps



Has file edges.

Length.........in.	8	10	12	14	16
Bastard...per doz.	$14.70	$20.10	$27.40	$36.20	$48.20
Smooth...per doz.	.....	27.40	36.20	.....	.....
Dimensions....in.	13/16x1/4	1x5/16	1 5/32x3/8	1 5/16x15/32	1 17/32x17/32
No. in Box........	12	6	6	6	6
Wt. per Doz....lb.	3 3/4	7 1/2	10 3/4	18 3/4	26 3/4

Skroo-Zon File Handles



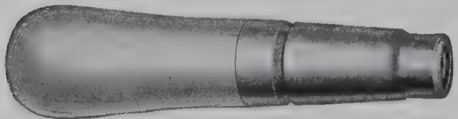
This is for use on files and all tools with a taper tang. Screws handle tightly on file, cutting its own thread. Made in eight sizes, each to be used on a certain file.

Made of moisture absorbing hardwood, shaped to fit the hand. Tang is held firmly in the hollow bore of the handle and never engages the wood, which, being relieved of all strain, cannot split.

Packed 12 in a box.

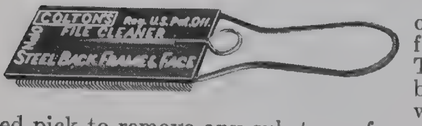
No............	1	2	3	4	5	6	7	8
Per Doz........	$2.40	2.40	2.64	2.64	3.14	3.14	3.74	3.74
For Files.....in.	Spec.Sm.	4	5	6	8	10	12	14

Lutz File Handles



No............	1	2	3	4	5
Per Dozen.......	....	....	....	....	....
Length........in.	4	4 1/2	4 7/8	5 1/2	6
Diameter.....in.	1	1 3/16	1 5/16	1 7/16	1 9/16
For Files......in.	3 to 6	6 to 8	8 to 12	12 to 16	16 to 20

No. 10 Colton's File Cleaners



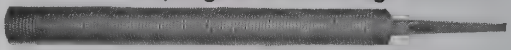
Cleans all types of files. Steel back, frame and face. Tempered steel wire bristles. Furnished with soft steel tapered pick to remove any substance from file which does not quickly yield to bristles. Packed 1 dozen per box.

No. 10, Ship. Wt., 2½ Lb. per Dozen.....per dozen **$12.00**

Heller VIXEN Files

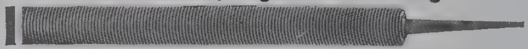
Sizes 10 inches and smaller packed 12 in a box; larger sizes packed 6 in a box.

Flat, Rigid—With Tang



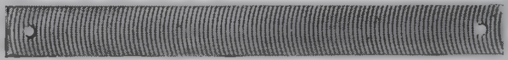
Size.............inches	8	10	12	14
Standard Cut. per dozen	$28.40	$34.70	$41.70	$49.10
Fine Cut......per dozen	32.80	39.80	47.10	54.90
Smooth Cut...per dozen	35.90	42.70	49.50	57.40
Approx. Size......inches	13/64x11/64	1x7/32	1 5/32x17/64	1 11/32x5/16

Half Round, Rigid—With Tang



Size.............inches	8	10	12	14
Standard Cut..per dozen	$33.30	$39.20	$46.70	$54.70
Fine Cut......per dozen	37.70	44.50	51.70	60.00
Smooth Cut...per dozen	40.50	47.40	53.90	62.40
Approx. Size......inches	2 3/32x1/4	15/16x5/16	1 1/8x3/8	1 9/32x27/64

VIXEN Flexible Curved Tooth Files



A special alloy steel file for the manufacture of automobile bodies. Used in garages, body bumping shops, pattern shops, machine shops, foundries, railroad shops, etc., also by aeroplane manufacturers and stone workers.

Each tooth has a decided undercut.

Lgth....................	8	10	12	14
Approx. Size.......inches	25/32x5/32	1x5/32	1 5/32x3/16	1 11/32x3/16
No. per Ctn..............	12	12	6	6
Wt. per Doz.......pounds	2 3/8	3	5 1/8	7 1/4

Babbit

Length...........inches	8	10	12	14
Per Dozen..............	.....	.....	.....	*$50.80

Standard

Length...........inches	8	10	12	14
Per Dozen..............	$29.70	37.30	44.90	*50.80

Fine

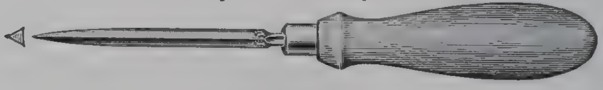
Length...........inches	8	10	12	14
Per Dozen..............	$35.80	43.40	50.90	58.50

Smooth

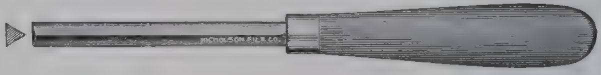
Length...........inches	8	10	12	14
Per Dozen..............	$38.80	45.60	53.20	61.50

*Std. with 8 teeth per inch; 9 teeth also available.

Nicholson Machinists Three Square Scrapers



Three Square


NICHOLSON FILE CO.

Three Square Blunt

Furnished dead hard. Overall length including handle, approximately 9¼ inches. 60° angle. Blade length, 4x⅜-inch.

Per Dozen.. $8.82

Hollow Ground

Has 60° angle. Length overall, 8 inches.

No............................	15	16
Per Dozen......................	$7.70	7.25
Dimensions................inches	3¼x⅜	3¼x¼

Simonds Files

Your Production Costs Can Be Lowered By Using the Highest Grade Files Specify Simonds Files

Nicholson X. F. Swiss Pattern Files

*Hand

Length.....inches	3	4	6	8	10	12
Cuts 00 and 0.....per dozen	$6.37	$6.37	$8.33	$11.97	$15.89	$20.93
Cut 1.....per dozen	....	6.65	9.24	13.16	17.64	23.52
Cut 2.....per dozen	6.65	6.65	9.24	13.16	17.64	23.52
Cut 3.....per dozen	....	7.35	10.71	14.70	19.53	.....
Cut 4.....per dozen	7.35	7.35	10.71	14.70	19.53	26.25
Cut 6.....per dozen	....	....	13.02	16.87	.....	.....

Pillar

Length.....inches	3	4	6	8	10	12
Cuts 00 and 0.....per dozen	$5.67	$5.67	$6.44	$8.96	$12.32	$16.80
Cut 1.....per dozen	5.74	5.74	6.86	9.66	13.09	18.34
Cut 2.....per dozen	5.74	5.74	6.86	9.66	13.09	18.34
Cut 3.....per dozen	6.44	6.44	7.98	11.13	.....	.....
Cut 4.....per dozen	6.44	6.44	7.98	11.13	15.68	.....
Cut 6.....per dozen	7.98	7.98	9.94	.....	.....	.....

Pillar Narrow

Length.....inches	3	4	6	8	10	12
Cuts 00 and 0.....per dozen	$5.67	$5.67	$6.44	$8.96	$12.32	$16.80
Cuts 1 and 2.....per dozen	5.74	5.74	6.86	9.66	13.09	18.34
Cut 3.....per dozen	6.44	6.44	7.98	11.13	.....	.....
Cut 4.....per dozen	6.44	6.44	7.98	11.13	15.86	.....
Cut 6.....per dozen	7.98	7.98	9.94	.....	.....	.....

Pillar Extra Narrow

Length.....inches	3	4	6	8	10	12
Cuts 00 and 0.....per dozen	$5.67	$5.67	$6.44	$8.96	$12.32	$16.80
Cuts 1 and 2.....per dozen	5.74	5.74	6.86	9.66	13.09	18.34
Cut 3.....per dozen	6.44	6.44	7.98	11.13	.....	.....
Cut 4.....per dozen	6.44	6.44	7.98	11.13	15.68	.....
Cut 6.....per dozen	7.98	7.98	9.94	.....	.....	.....

Round

Length.....inches	3	4	5	6	8	10	12
Cuts 00 and 0.....per dozen	$4.83	$5.32	$5.81	$6.79	$9.94	$13.30	$17.01
Cuts 1 and 2.....per dozen	5.18	5.74	6.37	7.49	10.64	14.70	19.32
Cut 3.....per dozen	5.60	6.16	6.79	8.19	11.27	.....	.....
Cut 4.....per dozen	5.60	6.16	6.79	8.19	11.27	16.38	.....
Cut 6.....per dozen	6.16	6.79	....	8.89	.....	.....	.....

Square

Length.....inches	3	4	6	8	10	12
Cuts 00 and 0.....per dozen	$5.81	$6.51	$8.54	$10.22	$12.67	$14.98
Cuts 1 and 2.....per dozen	5.88	6.79	9.24	11.62	15.40	19.04
Cut 3.....per dozen	6.16	7.49	10.64	14.28	.....	.....
Cut 4.....per dozen	6.16	7.49	10.64	14.28	18.41	.....
Cut 6.....per dozen	....	....	.....	.....	.....	.....

Half Round

Length.....inches	3	4	5	6	8	10	12
Cuts 00 and 0.....per dozen	$7.70	$8.68	$10.08	$11.62	$17.01	$22.68	$29.26
Cuts 1 and 2.....per dozen	8.54	10.22	11.97	13.58	19.32	24.64	31.29
Cuts 3 and 4.....per dozen	10.08	11.76	13.72	15.68	21.56	28.63	.....
Cut 6.....per dozen	.....	.....	.....	19.81	.....	.....	.....

Crossing

Length.....inches	3	4	6	8	10
Cuts 00 and 0.....per dozen	$9.94	$10.64	$14.42	$21.49	$28.56
Cuts 1 and 2.....per dozen	10.64	11.76	16.38	23.52	31.15
Cuts 3 and 4.....per dozen	12.18	13.65	18.55	26.25	.....
Cut 6.....per dozen	.....	17.08	22.75	.....	.....

Warding

Length.....inches	3	4	6	8	10
Cuts 00 and 0.....per dozen	$5.25	$5.95	$8.68	$11.62	$15.40
Cuts 1 and 2.....per dozen	5.67	6.72	9.87	12.88	17.71
Cut 3.....per dozen	....	....	.....	.....	.....
Cut 4.....per dozen	6.16	7.70	11.41	15.12	.....

Three Square

Length.....inches	3	4	5	6	8	10
Cuts 00 and 0.....per dozen	$6.65	$6.65	$7.35	$8.19	$10.64	$14.28
Cuts 1 and 2.....per dozen	7.21	7.21	7.89	8.89	11.62	15.54
Cut 3.....per dozen	....	7.70	....	10.08	13.02	.....
Cut 4.....per dozen	7.70	7.70	8.89	10.08	13.02	17.64

Metal Saw

Length.....inches	4	5	6	8
Cut 0.....per dozen	$6.65	$7.35	$8.19	$10.64
Cut 2.....per dozen	7.21	8.05	8.89	11.62
Cut 4.....per dozen	7.70	8.89	10.08	13.02

Knife

Length.....inches	3	4	5	6	8
Cuts 00 and 0.per dozen	$7.35	$8.12	$8.75	$10.99	$15.68
Cut 1.....per dozen	....	9.17	.....	14.21	17.92
Cut 2.....per dozen	8.12	9.17	10.22	14.21	17.92
Cut 3.....per dozen	....	10.22	.....	14.56	.....
Cut 4.....per dozen	8.75	10.22	12.04	14.56	20.86

Round Straight

Length.....inches	4	5	6	8
Cuts 00 and 0.....per dozen	$5.32	$5.88	$7.21	$11.41
Cut 2.....per dozen	5.74	6.65	8.19	12.67
Cut 4.....per dozen	6.16	7.35	9.24	14.07

Barrette

Length.....inches	3	4	6	8
Cuts 00 and 0.....per dozen	$8.54	$9.31	$11.27	$14.70
Cuts 1 and 2.....per dozen	8.68	9.52	11.97	15.68
Cut 4.....per dozen	9.10	9.94	13.02	17.01

Equaling

Length.....inches	3	4	6	8
Cuts 00 and 0.....per dozen	$5.95	$6.72	$8.19	$11.20
Cuts 1 and 2.....per dozen	6.51	7.49	9.10	12.39
Cut 4.....per dozen	7.28	8.19	10.43	14.14

Crochet

Length.....inches	3	4	6	8	10
Cuts 00 and 0.per dozen	$7.70	$8.54	$11.62	$16.38	$21.84
Cut 1.....per dozen	8.19	9.24	12.67	17.64	.....
Cut 2.....per dozen	8.19	9.24	12.67	17.64	23.52
Cut 4.....per dozen	9.24	10.22	14.07	19.04	.....

Slitting

Length.....inches	4	6
00 and 0.....per dozen	$9.52	$14.98
2.....per dozen	11.27	17.01

Round Handle Needle Files

Round, half round, flat, crossing, knife, square, three square, equaling, joint, barrette, slitting, marking, or assorted shapes.

Length.....inches	4	†5½	†6¼
0,2,4 and 6..per doz.	$4.83	6.23	6.72

Square Handle Needle or Escapement Files

Round, half round, flat, crossing, knife, square, three square, equaling, joint, barrette, slitting, half round blunt, or assorted shapes.

Length.....inches	5½
0, 2, 4 and 6.....per dozen	$6.37

Silversmiths' Rifflers

Length.....inches	7½
0 and 2.....per dozen	$18.71
No. in Set.....	12

Half Round Ring Files

Length.....inches	6
00 and 0..per dozen	$12.25
1 and 2..per dozen	13.72
4.....per dozen	15.89

Pippin

Length....inches	4	6	8
00 and 0.per doz.	$10.71	$14.56	$19.81
1 and 2.per doz.	11.55	15.89	20.93

Parallel Machine Files

Round, half round, pillar, oval, knife, square, three square, crochet, cant, pippin, lozenge, equaling, or assorted shapes.

Length.....inches	5	8
00, 0 and 2.....per dozen	$11.83	‡

Bench Filing Machine Files

Round, half round, pillar, oval, knife, square, three square, crochet, equaling, pippin, lozenge, cant, or assorted shapes.

Size.....inches	3¼x⅛	3¼x¼
00, 0 and 2..per dozen	$8.40	8.54

Die Sinkers' Rifflers

Length.....inches	6½
0, 2 and 4.....per dozen	$13.58
0, 2 and 4.....per set of 18	20.37

Hand Corrugating

Length.....inches	6
0.....per dozen	$8.33
2.....per dozen	9.24
4.....per dozen	10.71

Joint

Length.....inches	4	6
0 and 2:		
Rd. Edge.....per dozen	$6.09	$9.24
Sq. Edge.....per dozen	5.67	8.96

Die Sinkers' Files

Round, half round, flat, oval, knife square, three square, flat 2-round edges, flat 1 safe edge, oval 1 sharp edge, lozenge, auriform, or assorted shapes.

Length.....inches	3½
0, 1 and 2.....per dozen	$8.33

Screw Head Files

Length.....inches	3
With or without Tang...per doz.	$9.17

Pillar Testing Files

Length.....inches	6	§8
0.....per dozen	$7.84	$10.85
1.....per dozen	8.54	11.62

Broach Files

Length.....inches	3
Twist Drill Gage 40 to 65 .....per dozen	$4.20

*Hand filed are parallel in width but taper in thickness. The sides are double cut. Hand files in cuts Nos. 00, 0 and 2 are single cut on one edge. The other edge is safe. Hand files in cuts Nos. 3, 4, and 6 have two safe edges.

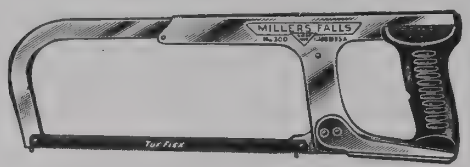
†Crossing furnished instead of oval in this size.

‡Prices on request.

§Narrow.

MILLERS FALLS FRAMES STOCKED IN SOUTH BEND ONLY

No. 300 Millers Falls Hacksaw Frames



Rigid, heavy duty frame. Adjustable for either 10 or 12-inch blades, which may be faced in any one of four directions.

Depth of throat, 3⅞ inches.

The handle is of extremely tough, durable red plastic molded on in one piece. Affords a comfortable grip.

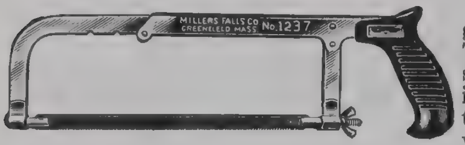
Equipped with Tuf-Flex special alloy, flexible blade.

All exposed metal parts polished, nickeled, and buffed.

Packed 1 in a box. Weight, 2 pounds.

No. **300**..each **$4.50**

No. 1237 Millers Falls Hacksaw Frames



Has a pistol grip handle. The end opposite the handle is built close to the frame, which facilitates working in close corners. The back is reinforced to withstand great strain. Blade, which is faceable in four directions, is strained by thumb nut under handle where it does not interfere with stroke.

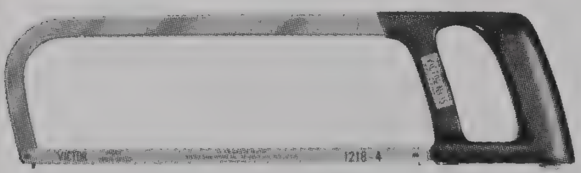
One 10-inch blade furnished with each frame.

Black composition handle. Nickel-plated frame.

Packed 2 in a box. Weight, 1¾ pounds.

Size	inches	3/16x11/16
No. **1237**	each	**$2.00**
Depth	inches	3¼
Capacity	inches	8 to 12

No. 15 Victor Hacksaw Frames



Solid heat treated steel back. Will not break, bend or dent. Cam-action lever lock, in under-the-handle location, automatically puts correct tension on blade. Quick length adjustment. Red molded Tenite handle; strong, comfortable and easy to clean.

Smooth, high gloss, rust-proof finish.

Furnished complete with 12-inch Victor Moly ***high speed*** 18-tooth blade.

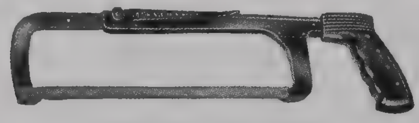
Individually packed in sturdy metal-edge box.

Shipping weight, 1½ pound.

No. **15**..each **$1.65**

No. 20 Victor Hacksaw Frames

Adjustable—For Blades 10 and 12 Inches



With Pistol Grip Handle

A strong, rigid, hacksaw frame, adjustable for 10 and 12-inch blades. Thumb screws and other loose parts replaced by cam-action lever lock. Correct tension on blades. Balanced for precision sawing.

Frame made of heat-treated spring steel. Pistol grip handle molded of corrosion-free, heat-resistant Tenite.

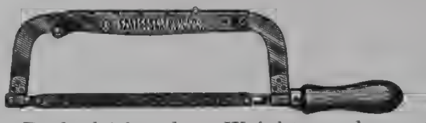
Complete with one Victor unbreakable special flexible blade.

Shipping weight, 2 pounds.

No. **20**..each **$3.25**

No. 1042 Crescent Hacksaw Frames

Adjustable for 8 to 12-Inch Blades

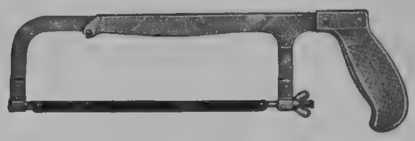


Made of round edge steel. Has nickel-plated frame, hardwood handle.

Packed 1 in a box. Weight per dozen, 13 pounds.

No. **1042**..each **$1.75**

No. 1046 Crescent Hacksaw Frames



This is an all steel frame, adjustable style. The handle is made of heavy gage steel in the popular pistol grip style and is securely riveted to the frame. Bright plated finish.

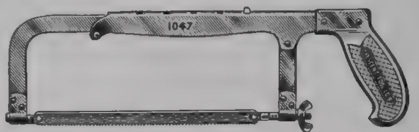
Frame is adjustable for 8, 10 and 12-inch blades. Depth of cut, 2½ inches; steel, .164x9/16.

Packed 1 in a box; 3 dozen in a shipping carton.

Weight each, 19 ounces.

No. **1046**..each **$2.35**

No. 1047 Crescent Hacksaw Frames



All steel frame, adjustable style. Handle is made of heavy gage steel in the popular pistol grip style and is securely riveted to the frame. This saw will stand throwing around without breaking.

Both frame and handle are nickel plated.

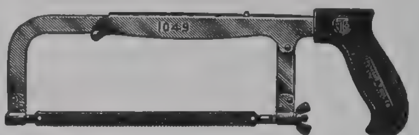
Adjustable, 8 to 12 inches. Depth of cut, 3¼ inches. Size steel, 3/16x11/16 inches.

Packed 1 in a box with blade. Packed 3 dozen in a shipping carton.

Weight, each, 23 ounces.

No. **1047**.. **$2.55**

No. 1049 Crescent Hacksaw Frames



This is a frame of the adjustable style with a pistol grip handle made of a tough synthetic. The frame extends all the way through the handle, and handle will not break off.

Chromium plated frame and black Neoprene handle.

Size adjustable, 8 to 12 inches. Depth cut, 3¼ inches. Size steel, 3/16x11/16 inches.

Packed 1 in a display box with blade; 3 dozen in a shipping carton.

Weight, 23 ounces.

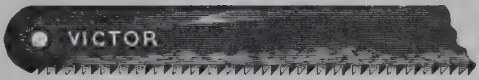
No. **1049**..each **$3.05**

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

SIMONDS HACK SAWS STOCKED IN SOUTH BEND ONLY

Victor Hand Hacksaw Blades



Blades with 14 teeth are for cutting brass, copper, soft steel and cast steel; 18 teeth, iron pipe, tool steel, hard metal and light angle iron; 24 teeth, drill rod and sheet metals; 32 teeth, thin tubing, electric casting and thin sheet metals. Standard package: 100 blades.

All Hard Blades

Size, In. *Lgth.	Wid.	Thickness In.	Gage	No. of Blade — Teeth per Inch 14	18	24	32	Wt. Lb. 100	Per 100 Blades
10	½	.025	23	......	1018–1	1024–1	1032–1	3¼	$14.95
12	½	.025	23	1214–1	1218–1	1224–1	1232–1	4	18.40

Flexible Blades

Size, In. *Lgth.	Wid.	Thickness In.	Gage	No. of Blade — Teeth per Inch 14	18	24	32	Wt. Lb. 100	Per 100 Blades
10	½	.025	23	......	1018–2	1024–2	1032–2	3¼	$14.95
12	½	.025	23	1214–2	1218–2	1224–2	1232–2	4	18.40

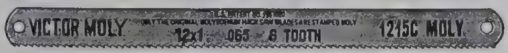
Special Flexible Blades

For use on soft metal of any thickness, shape or size.

Size, In. *Lgth.	Wid.	Thickness In.	Ga.	No. of Blade — Teeth per Inch 14	18	24	32	Wt., Lb. per 100	Per 100 Blades
10	½	.025	23	......	1018–3	1024–3	1032–3	3¼	$14.95
12	½	.025	23	1214–3	1218–3	1224–3	1232–3	4	18.40

*Lengths are from center to center of holes.

Victor Moly Power Hacksaw Blades



Heavy duty molybdenum alloy. Full efficiency at speed no more than 90 strokes a minute under moderate feed pressure.

Standard package, 10.

When ordering by number, add word Moly.

Size Inches	No. of Blade — Teeth per Inch 4	6	10	14	18	Wt. Lb. Per 100	Each
12x ⅝x.032	....	....	....	1214–34	1218–34	7½	$.95
12x1 x.050	....	....	1210–54	1214–54	....	19	1.67
14x1 x.050	....	....	1410–54	1414–54	....	21	1.94
14x1¼x.062	....	1406–64	1410–64	....	....	32	2.71
14x1½x.075	1404–74	1406–74	....	....	....	46	3.63
17x1 x.050	....	....	1710–54	1714–54	....	25	2.36
17x1¼x.062	1704–64	1706–64	1710–64	....	....	39	3.30
18x1¼x.062	....	1806–64	1810–64	....	....	40	3.48
18x1½x.075	1804–74	1806–74	....	....	....	59	4.67
18x1¾x.088	1804–84	1806–84	....	....	....	84	6.01
21x1¾x.088	2104–84	2106–84	....	....	....	95	7.02
24x1¾x.088	2404–84	2406–84	....	....	....	111	8.02
24x2 x.100	2404–04	....	....	....	....	142	9.96
30x2½x.100	3004–04	....	....	....	....	229	15.56

Victor Moly Hand Hacksaw Blades

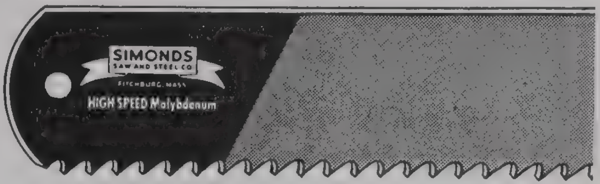
VICTOR
MOLY HIGH SPEED
VICTOR SAW WORKS, I
U. S. PAT

A heavy duty, molybdenum alloy hacksaw blade. Every blade carries patented, self-lubricating, gold finish with full specification data printed thereon.

Packed in cardboard containers bearing full directions for the selection and application of the blade.

Size Inches	No. of Blade — Teeth per Inch 14	18	24	32	Wt., Lb. per 100 Blades	Per 100 Blades
10x½x.025	......	1018–4	1024–4	1032–4	3½	$58.65
12x½x.025	1214–4	1218–4	1224–4	1232–4	4½	70.15

Simonds Red End High Speed Molybdenum Hacksaw Blades



Power blade lengths as listed below are measured from center to center of holes, excepting 14, 17 and 18-inch power blades which measure 13½, 16½ and 17½ inches respectively between center of holes.

Hand Blades

All Hard and Hard Edge

Length Inches	Width Inches	Thickness Inches	Teeth per Inch	No. in Box	Wt. Lb. per Box	Per 100
10	½	.025	18–24–32	100	3½	$58.65
12	½	.025	14–18–24–32	100	4½	70.15

Power Machine Blades

Length Inches	Width Inches	Thickness Inches	Teeth per Inch	No. In Box	Wt., Lb. per 100	Each
12	⅝	.032	14–18	10	7½	$.95
12	1	.050	10–14	10	19	1.67
14	1	.050	10–14	10	21	1.94
14	1¼	.062	6–10	10	32	2.71
14	1½	.075	3–4–6	10	46	3.63
17	1	.050	10–14	10	25	2.36
17	1¼	.062	3–4–6–10	10	39	3.30
18	1¼	.062	6–10	10	40	3.48
18	1½	.075	3–4–6	10	59	4.67
18	1¾	.088	3–4–6	10	84	6.01
21	1¾	.088	3–4–6	10	95	7.02
24	1¾	.088	3–4–6	10	111	8.02
24	2	.100	3–4	10	142	9.96
30	2½	.100	4	10	229	15.56

Blu-Mol Molybdenum Hacksaw Blades

BLU-MOL
MOLYBDENUM
HACK SAW BLADES
MILLERS FALLS COMPANY, GREENFIELD, MASS.

Made of special analysis molybdenum alloy steel.

Hand Blades

Packed 100 in a box.

Lgth. In.	Width Inches	Thickness Inches	No. of Blade — Teeth per Inch 14	18	24	32	Wt. Lb. per 100	Per 100
10	½	.025	......	1018M	1024M	1032M	3⅝	$58.65
12	½	.025	1214M	1218M	1224M	1232M	4¼	70.15

Standard set, 14T and 18T blades. Wavy set, 24T and 32T.

Power Machine Blades

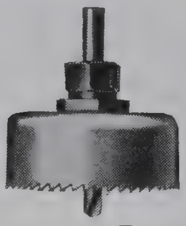
Packed 10 in a box.

Lgth. In.	Width Inches	Thickness Inches	No. of Blade — Teeth per Inch 4	6	10	14	18	Wt. Lb. per Box of 10	Per Blade
12	⅝	.032	......	......	......	1254M	1258M	⅞	$.95
12	1	.050	......	......	......	2414M	......	1⅞	1.67
12	1	.050	......	......	2410M	......	......	2⅜	1.67
14	1	.050	......	......	......	4414M	......	2¼	1.94
14	1	.050	......	......	4410M	......	......	2¾	1.94
14	1¼	.062	......	4506M	4510M	......	......	3½	2.71
14	1½	.075	4604M	4606M	......	......	......	4⅜	3.63
17	1	.050	......	......	......	7414M	......	2¾	2.36
17	1	.050	......	......	7410M	......	......	3⅜	2.36
17	1¼	.062	7504M	8506M	7510M	......	......	4	3.30
18	1¼	.062	......	8506M	8510M	......	......	4¼	3.48
18	1½	.075	8604M	8606M	......	......	......	5½	4.70
18	1¾	.088	8784M	8786M	......	......	......	8½	6.01
21	1¾	.088	1784M	1786M	......	......	......	9⅛	7.01
24	1¾	.088	4784M	4786M	......	......	......	11⅛	8.02
24	2	.100	4814M	25/64″ Hole	......	......	......	14½	9.96
30	2½	.100	3114M	25/64″ Hole	......	......	......	22⅞	15.56

Black & Decker Hole Saws

High Speed **Steel**

Coarse Tooth Tungsten Steel Saw on No. 14903 Mandrel



Coarse Tooth Tungsten Steel Saw on No. 18028 Mandrel

Can be used with any drill or spindle equipped with a correct chucking device, but the power and speed of the spindle will govern the size hole saw to be used. The following limits are suggested: on 1/4-in. low-speed Holgun, not larger than 1 1/8-in. hole saw; on 3/8-inch standard drill, not larger than 1 1/2-in. hole saw; on 1/2-in. special and 1/2-in. standard, not larger than 3 1/2-in. hole saw.

Hole saws are interchangeable on mandrels; each mandrel includes a pilot drill which centers the hole saw and keeps the cutting concentric. Standard hole saw has approximately 3/4-inch depth-of-cut.

			***High Speed* Steel**		**—Uses Mandrel—**	
O.D. Saw In.	Conduit Size In.	Pipe Tap Size In.	Medium Tooth Cat. No.	Saw Only Each	For 1/2-Inch or Larger Drills No.	For 1/4, 5/16 or 3/8-Inch Drills No.
5/8	...	...	36468	***$3.25***	*	*
3/4	3/8	...	21747	***1.65***	14903	22181
7/8	1/2	...	21748	***1.65***	14903	22181
15/16	...	3/4	21749	***1.65***	14903	22181
1	...	...	21771	***1.75***	14903	22181
1 1/16	...	...	22809	***1.75***	14903	22181
1 1/8	3/4	...	21772	***1.75***	14903	22181
1 3/16	...	1	21773	***1.75***	14903	22181
1 1/4	...	...	21781	***1.75***	14904	22182
1 3/8	1	...	21782	***1.95***	14904	22182
1 1/2	...	1 1/4	21783	***1.95***	14904	22182
1 5/8	...	...	21784	***1.95***	14904	.....
1 3/4	1 1/4	1 1/2	21785	***2.20***	14904	.....
1 7/8	...	...	21786	***2.20***	14904	.....
2	1 1/2	...	21787	***2.20***	18028	.....
2 1/16	...	...	21788	***2.90***	18028	.....
2 1/8	...	...	21789	***2.90***	18028	.....
2 1/4	...	2	21790	***2.90***	18028	.....
2 3/8	...	...	21791	***2.90***	18028	.....
2 1/2	2	...	21792	***2.90***	18028	.....
2 5/8	...	...	21793	***2.90***	18028	.....
2 3/4	...	2 1/2	21794	***2.90***	18028	.....
2 7/8	...	...	21795	***2.90***	18028	.....
3	2 1/2	...	21796	***2.90***	18028	.....
3 1/8	...	...	21797	***3.20***	18028	.....
3 1/4	...	3	21798	***3.20***	18028	.....
3 3/8	...	...	27165	***3.80***	18028	.....
3 1/2	3	...	21799	***3.80***	18028	.....
3 5/8	...	...	27166	***3.80***	18028	.....
3 3/4	...	...	36454	***4.10***	18028	.....
3 7/8	...	...	36455	***4.10***	18028	.....
4	3 1/2	...	21800	***4.90***	18028	.....

*Built-in mandrel; no separate mandrel required.

Mandrels for 1/4, 5/16 and 3/8-Inch Drills

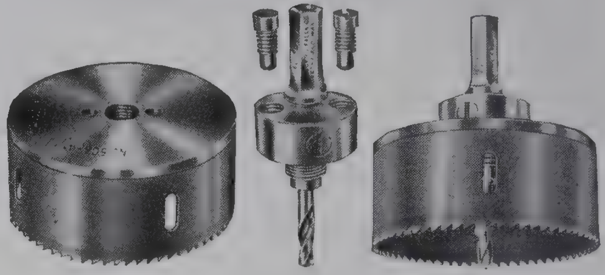
No. **22181** Mandrel with Pilot Drill, to Fit 3/4 to 1 3/16-Inch Hole Saws..............................each **$2.25**
No. **22182** Mandrel with Pilot Drill, to Fit 1 1/4 to 1 1/2-Inch Hole Saws..............................each **2.40**
No. **22192** Pilot Drill Only for Above Mandrels..each **.75**

Mandrels for 1/2-Inch Drills and Larger

No. **14903** Mandrel with Pilot Drill, to Fit 3/4 to 1 3/16-Inch Hole Saws..............................each **$2.15**
No. **14904** Mandrel with Pilot Drill, to Fit 1 1/4 to 1 7/8-Inch Hole Saws..............................each **2.15**
No. **18028** Mandrel with Pilot Drill, to Fit 2 to 4-Inch Hole Saws..............................each **2.95**
No. **14935** Pilot Drill Only for above Mandrels..each **.60**

No. 500 Series Millers Falls Blu-Mol Heavy Duty Follow-Through Hole Saws

High Speed **Steel Cutting Edge**



Rugged gang cutting tool. Cutting depth, 1 1/8 in. Cuts hole from 5/8 to 4 1/2-inch diameter in any machinable material, such as hard and mild steel, aluminum, brass and bronze, plastics, iron or steel pipe, wood, etc. As o.d. of cut is slightly larger than diameter of body, saw follows completely through its own hole, permitting the cutting through two or more walls or partitions or through pile of stacked material. All sizes have 6 teeth per in.

High speed steel cutting edge is welded to tough alloy steel back which in turn is welded to steel body receiving mandrel that drives it. Knockout holes provided for removing cores. Mandrel screws into body; two drive pins screw into two holes provided for them in sizes Nos. 520 and up, making very positive drive. Drive screws not required on smaller size saws driven by mandrels Nos. 5514, 5518 and 5520. Packed 1 saw, mandrel or extension in box.

Suggestions for Operating. Use specified mandrel for size saw user wants to operate. When using Nos. 5540 and 5572, unscrew two drive pins until they are hidden in body, screw mandrel into saw as far as possible and have drive holes line up with pins and then seat pins. Adjust pilot drill so that only tapered lips extend beyond saw teeth. Use good quality cutting oil on all metals other than cast iron. Clear chips frequently to prevent loading teeth.

Operating Speeds. These speeds are subject to variations. Stainless steel and very hard alloy steel cutting should be done at about one half speeds given.

Size Saw, In.	RPM.	Size Saw, In.	RPM.	Size Saw, In.	RPM.
5/8 to 7/8	460	**2 to 2 1/4**	170	**3 1/2 to 3 3/4**	110
1 to 1 1/8	345	**2 3/8 to 2 5/8**	155	**3 7/8 to 4 1/8**	100
1 1/4 to 1 1/2	270	**2 3/4 to 3**	135	**4 1/4 to 4 1/2**	90
1 5/8 to 1 7/8	215	**3 1/8 to 3 3/8**	120	....	...

Hole Saws

		—Dimensions, In.—					—Dimensions, In.—		
No.	Each	Diam. Saw	Pipe Tap	Pipe Entrance	No.	Each	Diam. Saw	Pipe Tap	Pipe Entrance
509	***$4.00***	9/16	...	...	534	***$5.30***	2 1/8	...	...
510	***3.00***	5/8	...	...	536	***5.30***	2 1/4	2	...
511	***3.00***	11/16	...	...	537	***5.30***	2 5/16	...	...
512	***3.00***	3/4	...	3/8	538	***5.30***	2 3/8	...	...
513	***3.00***	13/16	...	...	540	***5.30***	2 1/2	...	2
514	***3.00***	7/8	3/4	1/2	541	***5.30***	2 9/16	...	...
515	***3.00***	15/16	...	...	542	***5.30***	2 5/8	...	...
516	***3.00***	1	...	...	544	***5.30***	2 3/4	...	...
517	***3.00***	1 1/16	...	...	546	***5.30***	2 7/8	...	...
518	***3.00***	1 1/8	1	3/4	548	***5.30***	3	...	2 1/2
519	***3.00***	1 3/16	...	...	550	***5.30***	3 1/8	...	...
520	***3.00***	1 1/4	...	...	552	***5.30***	3 1/4	3	...
521	***3.00***	1 5/16	...	...	554	***5.30***	3 3/8	...	...
522	***3.00***	1 3/8	...	1	556	***5.30***	3 1/2	...	...
523	***3.00***	1 7/16	...	...	558	***7.00***	3 5/8	...	3
524	***3.00***	1 1/2	1 1/4	...	560	***8.00***	3 3/4	3 1/2	...
525	***3.00***	1 9/16	...	...	562	***8.50***	3 7/8	...	...
526	***3.00***	1 5/8	...	...	564	***9.00***	4	...	...
527	***3.00***	1 13/16	...	...	566	***10.00***	4 1/8	...	3 1/2
528	***4.00***	1 3/4	1 1/2	1 1/4	568	***13.00***	4 1/4	...	...
529	***4.00***	1 13/16	...	...	570	***15.50***	4 3/8	...	...
530	***4.00***	1 7/8	...	...	572	***18.00***	4 1/2	...	4
532	***4.00***	2	...	1 1/2	576	***20.00***	4 3/4	...	...
533	***5.30***	2 1/16	...	...	...	......	...	...	...

Mandrels with *High Speed* Pilot Drills

For driving No. 500 series hole saws; with 1/4-inch ***high speed*** pilot drills. Extra pilot drills, $1.50.

No.	Each	For Saw Nos.	Shank Inches	Wt. Lb.	No.	Each	For Saw Nos.	Shank Inches	Wt. Lb.
5514	***$2.50***	510–518	1/4 Rd.	1/4	**5540**	***$6.00***	526–572	5/8 Hex.	5/8
5518	***4.00***	510–518	7/16 Hex.	1/4	**5572**	***6.00***	526–572	7/16 Hex.	3/4
5520	***5.00***	519–524	7/16 Hex.	3/8	**5500**	***4.00***	12"Ext.	7/16 Hex.	7/8

Simonds Metalcutting Band Saw Blades

Spring Temper Type

For cutting brass, zinc, thin steel. Can be reset and filed.

When ordering, give length, width, thickness or gage, number of teeth to inch, class of work to be cut, name and style of machine on which blade is to operate.

Width In.	Thick. Gage	Teeth per Inch	Per Foot	Welding Each	Width In.	Thick. Gage	Teeth per Inch	Per Foot	Welding Each
¼	23	8–10	$.28	$1.25	⅝	20	4–6–8–10	$.42	$1.25
⅜	23	8–10	.30	1.25	¾	20	4–6–8	.46	1.25
⅜	21	8–10	.32	1.25	1	20	4–6–8	.56	1.25
½	23	6–8–10	.34	1.25	1¼	19	3–4	.70	1.25
½	21	6–8–10	.36	1.25	1¼	18	*	.76	1.25
⅝	23	4–6–8–10	.36	1.25	1½	18	*	.84	1.25
⅝	21	4–6–8–10	.40	1.25	1¾	18	*	.98	1.25

Deduct: $.08 per ft. if neither filed nor set; $.025 per ft. if filed, not set; $.055 per ft. if set, not filed. *Specify.

Simonds Metalcutting Skip Tooth Bandsaws

Used on materials such as plastics, wood, aluminum, and magnesium which are soft and require extra gullet capacity for the large chips which are formed.

Although these teeth are coarse, the shape of the gullet is such that maximum strength is maintained in the body of the blade even in the narrower widths.

Hardened on the tooth edge.

Width........in.	¼ and less	⅜	½	¾	1
Per Foot........	$.16	.17	.18	.255	.32
Thickness....in.	.025	.025	.025	.032	.035
Teeth per In.....	4–6	3–4	3–4	3	2–3

Per weld, all widths $1.00.

Proper No. Teeth and Speed of Band Saws for Cutting Different Materials

Ferrous Materials

	Teeth Per Inch	Speed FPM.
Alloy Steel	14	100
Carbon Tool Steel	14	100
Cold Rolled	10	140
Drill Rod	14	100
High Speed	14	100
Machinery Steel	10	150
Malleable Iron	10	150
Pipe Iron	14	150
Stainless Steel	14–18	80
Tubing Steel	14–18	120

Non-Ferrous Materials

Aluminum Alloy	10	1500
Aluminum Pure	6–8	2500
Brass Casting (Hard)	14	200
Brass Casting (Soft)	8–10	450
Bronze (Aluminum)	14	200
Bronze (Government)	14	150
Bronze (Manganese)	14	150
Duralumin	10	500

Miscellaneous

Asbestos Sheets	8	300
Bakelite	14	500
Builders Board	10	800
Fiber	10	450
Lucite	10	200
Plastics	10	700

Simonds Hard Edge Metalcutting Band Saws

Care of Machine

Care should be taken to see that band saw machine is in good working order. Guides should be properly adjusted so that blade will run perfectly straight and not bind. Material to be cut should be held tightly and if several pieces are to be ganged or cut at one time, they should be clamped securely together so that there will be no weaving in cut.

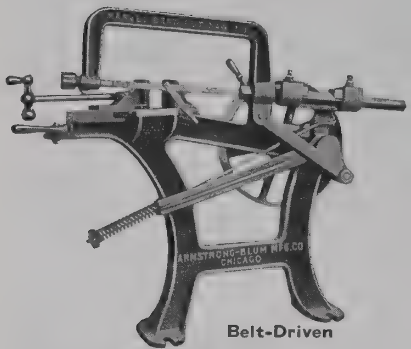
Sizes of Saws Required for Various Metalcutting Band Saw Machines

Type of Machine	Lengths Ft.	Lengths In.	Width Inches
Atkins No. 3	15	8	⅝, ¾ or 1
Atkins No. 4	14	1	⅝, ¾ or 1
Avey Milband	14	9	1
Boice Crane	8	2	3/16, ¾
Clark Compound	15	6	1
Clark Junior	10	10	½ or ⅝
Clark Special	10	10	½ or ⅝
Delta 14-Inch	7	9	⅛–¾
Delta (with Height Attachment)	8	9	⅛–¾
Delta 20-Inch	11	9	3/16–1
Do-All No. J	7	...	⅛–½
Do-All No. JD	8	7	⅛–½
Do-All No. M	9	...	⅛–½
Do-All No. ML	10	...	⅛–½
Do-All No. V-16	10	...	⅛–½
Do-All No. V-26	14	9	⅛–1
Do-All No. V-36	13	6	⅛–½
Famco No. 612 (All Models)	8	10	⅝
Grob NS-18-10	12	...	⅛–1
Grob NS-24-10	14	4	⅛–1
Grob NS-36	15	10	⅛–1
Grob NS-60-10	20	..:	⅛–1
Grob OSN-20 and OSN-14 (Open End)	140	...	⅛–¼
Grob CO-18 Cut-Off Saw	13	6	¾(
Grob HS-24 Hi-Speed	14	4	½–1
Houghton	12	6	⅝ or ¾
Johnson Model J	11	5	¾
Johnson Model B	7	5	½
Kalamazoo Models 816C and 816S	10	5	¾
Kalamazoo Models 824C and 824S	12	1	¾
Kalamazoo Model 610	7	5	½
Kalamazoo Model 1220	13	11	1
Klemm No. 1	11	2	⅝ or ¾
Klemm No. 2	15	8	⅝ or ¾
Laidlaw CMT and CM	15	8	1
Laidlaw JM-30 and SM-30	16	...	¾ or 1
Laidlaw JM-30 Fdry	16	...	1 or 1¼
Laidlaw JM-30 Fdry	17	6	1¼
Laidlaw JM-20-In., SM-20-In. and SMT-20	11	...	3/16–⅝
Laidlaw SMT-30	16	...	3/16–⅝
Marvel No. 8	14	8	¾
Marvel No. 8 High Column	15	8	¾
Milclark	10	10	½ or ⅝
Napier	12	3	1
Napier Jr.	8	4	¾
Racine	7	8	⅛–⅝
Roll-In	9	2	¼–¾
Stockbridge 6-Inch	12	5½	⅝
Stockbridge 9-Inch	13	...	⅝
Stockbridge 12-Inch	15	5½	¾
Tannewitz E-24-Inch	13	7	⅛ to 1
Tannewitz P-30-30-In., PH-30-In.	17	...	⅛ to 1½
Tannewitz G-3-36-Inch	19	6	⅛ to 1¾
Tannewitz GH-36-In., GHE-36-In.	19	9	⅛ to 1¾
Tannewitz DI-Saw 24M, 36M, 48M.	13	7	⅛ to ½
Tannewitz RH-42-In., RHE-42-In.	22	...	⅛ to 1¾
Thompson	15	8	⅝ or ¾
Thompson Milband	12	11	¾
Walker-Turner 16-Inch	9	3½	¼–¾
Wells 49A	5	...	½
Wells No. 5	8	2½	½
Wells Nos. 7A, 7B and 8	11	6	¾
Wells No. 9	9	5	½
Wells No. 12	13	6	1
W. F. Wells Model M	11	5	¾
W. F. Wells Model D	14	5	1
Williamson	20	9	⅝
Wright	15	8	⅝ or ¾

No. 1 Marvel Draw Cut Hacksaws

Belt or Motor-Driven

Capacity, 4x4 Inches



Belt-Driven

Feed pressure is applied to saw blade on draw cut only, pressure being released on return stroke. Feed is regulated by hand nut at front end of compression spring. Feed lever raises or lowers saw frame and holds it at any angle. Vise is quick action type. Large jaws. Extension to table so material rests on both sides of saw.

Drive shaft automatically stops when cut is completed.

Length of blade, 12 inches. Size of pulley, 18x3¼ inches. Revolutions, 60 to 90 per minute. Takes 3-inch belt.

Motor-driven saw uses ¼-hp. motor, connected to crank shaft by means of chains and sprockets running in oil in gear case.

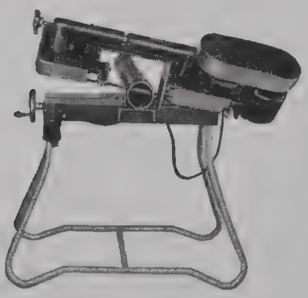
Description	Each	Ship. Wt. Lb.
Belt-Driven, Complete with Pulley and Clutch.	$120.75	140
Motor-Driven, Complete with Standard Motor, Manual Switch and Automatic Stop:		
110 or **220**-V., 50 or 60-Cy., Single-Phase, A.C.	225.75	225
110 or **220**-V., 25 Cycle, Single-Phase, A.C.	249.90	225
115 or **230**-Volt, D.C.	248.85	225
220-Volt, 50 or 60-Cycle, 2 or 3-Phase, A.C.	233.10	225
220-Volt, 25 Cycle, 3-Phase, A.C.	259.35	225
440-Volt, 50 or 60-Cy., 3-Phase, A.C.	236.25	225

MATERIAL NOT LISTED

We can furnish many items
not listed in this catalog.
Please send us all your inquiries.

No. 49A Wells Metalcutting Band Saws

¼-Hp. Ball Bearing Motor—V-Belt Drive



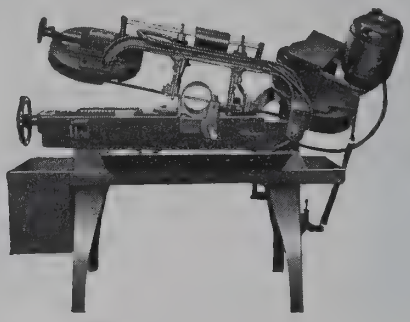
This portable band saw has welded steel frame and tubular steel base. Automatic shut-off at end of each cut eliminates need for operator to stand by. The continuous cutting action utilizes every tooth of the band saw blade.

Capacity: 3½x6-inch rectangular, or 3½-inch diameter rounds. Blade, ½ by .025 inches by 5 feet. Speeds, 54, 100 and 190 feet per minute. Positive screw type vise.

Height to top of bed, 24 in.; bed area, 6½x24 in.; required floor space, 16½x38 in. Approx. wt., 118 lb.

No. **49A**, with Motor........................each	**$235.00**

No. 5 Wells Utility Metalcutting Band Saws



With Wet Cutting System

Cut-off saw designed for toolroom, maintenance or light production work. Capacity: rectangular 5x10 inches; rounds, 8 inches in diameter. Blade size, 8 feet 2½ inches by ½ inch. Swivel vise, to 45 degrees.

Drive is V-belt, quick change, selective four speed; 50, 90, 160, 250 fpm. All moving parts of the saw run on ball bearings.

Equipped with ball bearing type ⅓-hp. motor and stock stop.

Hydraulic frame check stabilizes feed; Fool-proof blade tensioning increases blade efficiency.

The wet cutting system assures longer blade life.

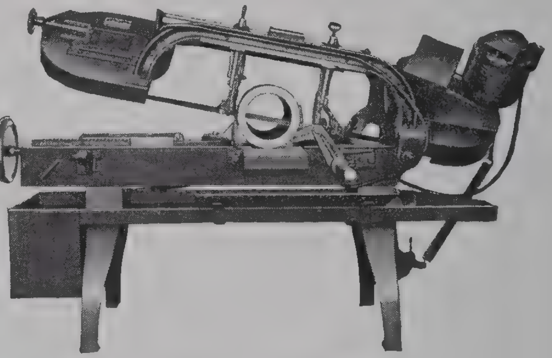
Width of bed, 8½ inches. Floor to top of bed, 25½ inches. Floor space, 21x50 inches.

Approximate shipping weight, 365 pounds.

When ordering, give motor specifications.

No. **5** Band Saw Only........................each	**$395.00**
Wet Cutting System:	
115 Volts........................each	**100.00**
220 Volts........................each	**113.50**
440 Volts........................each	**116.50**

No. 8 Wells Utility Metalcutting Band Saws



With Wet Cutting System

A general purpose or production machine which cuts most metals of regular or odd shapes, including pipe or thin wall tubing. Capacity: rectangular, 8x16 inches; rounds, 8 inches in diameter. Blade size, 11 feet 6 inches by ¾ inches. Swivel vise, to 45 degrees.

Drive is V-belt, quick-change, selective four speed; 50, 100, 175, or 275 fpm. All moving parts of the saw run on ball bearings.

Equipped with highly efficient ½-hp. ball bearing type motor and rigid stock stop.

Hydraulic frame check stabilizes feed. Fool-proof blade tensioning increases blade efficiency.

The wet cutting system assures longer blade life.

Width of bed, 10¼ inches. Floor to top of bed, 25½ inches. Floor space, 24x72 inches.

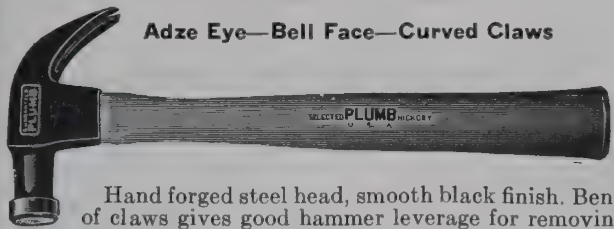
Approximate shipping weight, 590 pounds.

When ordering, give motor specifications.

No. **8**, Band Saw Only........................each	**$565.00**
Wet Cutting System:	
115 Volts........................each	**105.00**
220 Volts........................each	**118.50**
440 Volts........................each	**121.50**

Plumb Nail Hammers

Adze Eye—Bell Face—Curved Claws



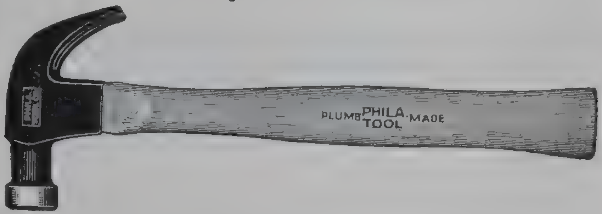
Hand forged steel head, smooth black finish. Bend of claws gives good hammer leverage for removing nails. Fitted with red hickory handle. Permabond handle assembly guarantees handle to stay tight in the eye.

Packed 6 in a box.

No.	80	81	82	83
Each	....	....	....	....
Size	11	11½	12	13
Handle Length....inches	13½	13	12½	11½
Weight, without Handle....oz.	20	16	13	7

Plumb Philadelphia Nail Hammers

Adze Eye Bell Face Pattern



Hand-forged steel head.

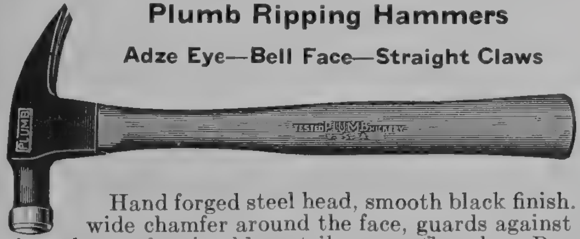
Black rough finish; lacquered handle. This hammer has an exceptional balance and striking power.

Packed 6 in a box.

No.	145	147
Each	....	....
Size No.	11½	13
Weight, without Handle....pounds	1	7/16

Plumb Ripping Hammers

Adze Eye—Bell Face—Straight Claws



Hand forged steel head, smooth black finish. The wide chamfer around the face, guards against chipping when a glancing blow strikes near the edge. Breakage at eye is overcome by armor plate heat-treatment.

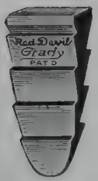
Fitted with red hickory handle. Permabond handle assembly guarantees handle to stay tight.

Packed 6 in a box.

No.	85	86
Each	....	....
Size	11	11½
Handle Length....inches	13½	13
Weight, without Handle....pounds	1¼	1

Red Devil Steel Wedges

Cuts Are Actual Size



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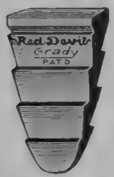

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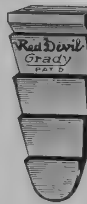
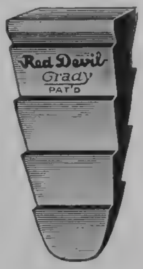


No. 4



No. 5

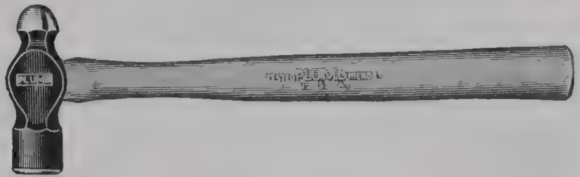
Scientifically designed for all sizes of hammers, hatchets, single and double bitted axes, etc.

No.	2	3	4	5	10	15	18
Per Dozen	$.48	.48	.60	.72	.96	1.32	1.68
No. in Box	36	36	36	36	24	12	6
Weight per Gross.lb.	*13	*18	1⅜	2⅝	4 13/16	7⅛	†

*Ounces. †Weight each, 1½ ounces.

Plumb Machinists' Ball Pein Hammers

Hand Forged—Smooth Black Finish—Red Handle



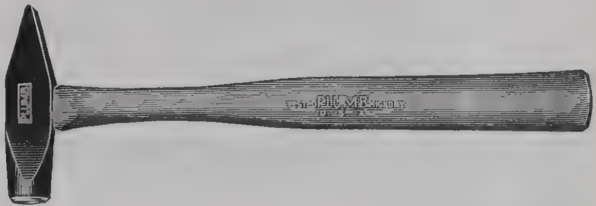
Handle made of selected hickory. Permabond handle assembly, a chemical weld that binds head and handle together permanently.

Packed 6 in a box. Weight does not include handle.

No.	Size	Wt., Lb.	No.	Size	Wt., Lb.
367	7/0	⅛	374	1	1¼
369	5/0	¼	375	2	1½
371	3/0	½	377	4	2
372	2/0	¾	379	6	2½
373	0	1	381	8	3

Plumb Machinists' Riveting Hammers

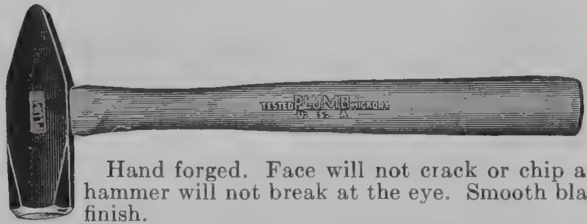
Black Head—Red Handle



Made of special analysis steel, perfectly balanced for accurate work. Handles of second growth hickory. Permabond handle assembly guarantees handle to stay tight.

No.	250	251	252	253
Size No.	0	1	2	3
Handle Length....inches	10	12	12	13
Weight....ounces	4	7	9	12
Ship. Weight per Doz....pounds	4½	7¾	9½	12

Plumb Engineers' and Blacksmiths' Hand Hammers



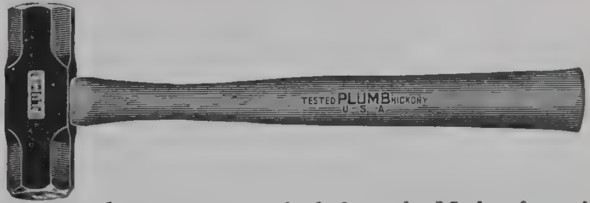
Hand forged. Face will not crack or chip and hammer will not break at the eye. Smooth black finish.

Permabond handle assembly guarantees the handle to stay tight in the eye. Mahoganized handle, red finish.

Packed 6 in a box. Weights do not include handle.

No.	281	282	283
Each	...	...	...
Size No.	1	2	3
Weight....pounds	2	2½	3

Plumb Engineers' Double Face Hammers



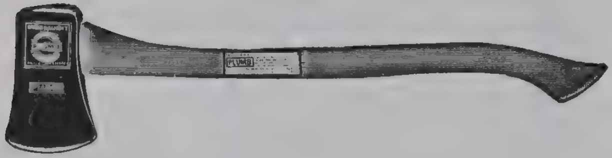
A heavy hammer, correctly balanced. Made of special analysis steel tempered to eliminate mushrooming. Has smooth black head. Permabond handle assembly guarantees the handle to stay tight in the eye. Red hickory handle shaped for hand comfort.

Packed 6 in a box. Weights do not include handles.

No.	272	273
Each	...	...
Size No.	2	3
Weight....pounds	2½	3

Plumb Dreadnaught Single Bit Axes

Michigan Pattern



Hand forged from one piece of high grade steel, cutting edge double tempered. Smooth black finish.

Fitted with hickory handle, red finish.

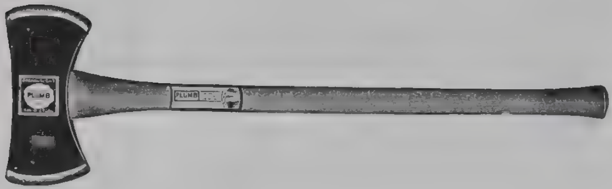
Packed 4 in a box.

Weight.......................pounds	3	3½	4
Each............................	...	...	...

Plumb Dreadnaught Double Bit Axes

Michigan Pattern

Handled



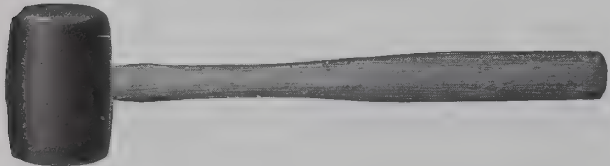
Hand forged from one piece of high grade steel, cutting edge double tempered. Non-rusting finish. Black head.

Fitted with 36-inch, red mahoganized hickory handle.

Packed 4 in a container.

Made in weights of 3, 3½ and 4 pounds.

Rubber Mallets

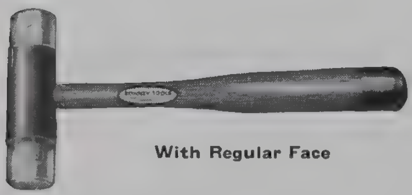


Used by furniture and cabinet makers, foundries, bottling works, etc.

Compounded from high grade stock that will not chip or wear. Has best quality hickory handle inserted.

No............................	1	2	3
Each............................	....	....	....
Length....................inches	3 1/16	4	5
Face.......................inches	2⅛	2¼	2 9/16
Diameter in Center........inches	2 9/16	2 13/16	3¼
Approx. Wt. Including Handle.lb.	1	1¼	2¼

Bonney Soft Face Hammers



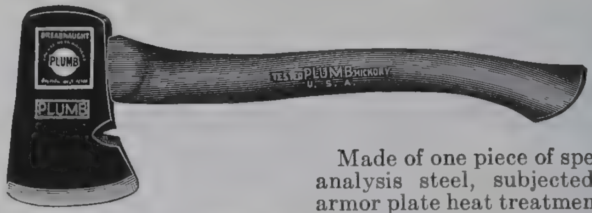
With Regular Face

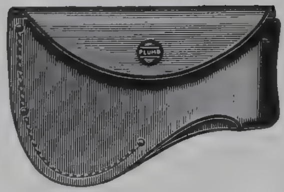
Will not mar a finely finished surface or delicate machine parts. Tough, amber colored cellulose tips are replaceable.

Hickory handle has a comfortable grip, wedged securely in steel center head. Handle lacquered red with orange end and steel center head is orange.

No..............................	PH18	PH15	PH20
Each..............................	**$1.94**	**$2.55**	**$3.07**
Extra Tips.....................each	.40	.55	.60
Length of Handle............inches	9	11¾	11¾
Weight of Head.............ounces	4	8	16

Plumb Belt Axes





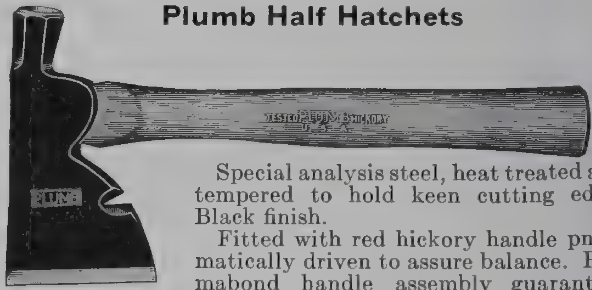
Made of one piece of special analysis steel, subjected to armor plate heat treatment to insure a keen cutting edge. Black finish.

Fitted with red hickory handle, 14 inches long.

Weight, 1¼ pounds.

No. **680**, without Sheath.........each	.....
No. **682**, with Leather Sheath.........each	.....

Plumb Half Hatchets



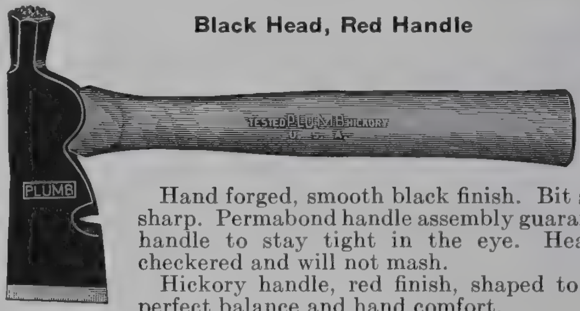
Special analysis steel, heat treated and tempered to hold keen cutting edge. Black finish.

Fitted with red hickory handle pneumatically driven to assure balance. Permabond handle assembly guarantees handle to stay tight in the eye. Packed 4 in a box.

No..	**2961**	**2962**
Size..	1	2
Bit.................................inches	3¼	3⅝
Handle Length......................inches	13	13½
Weight per Dozen..................pounds	18	22

No. 2981 Plumb Lathing Hatchets

Black Head, Red Handle



Hand forged, smooth black finish. Bit stays sharp. Permabond handle assembly guarantees handle to stay tight in the eye. Head is checkered and will not mash.

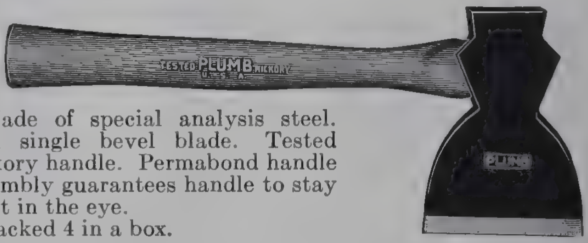
Hickory handle, red finish, shaped to give perfect balance and hand comfort.

Size No. 1. Length, 12½ inches. Size bit, 2¼ inches. Packed 4 in a box.

No. **2981**.......................................each	....

Plumb Broad Hatchets

Black Head and Red Handle

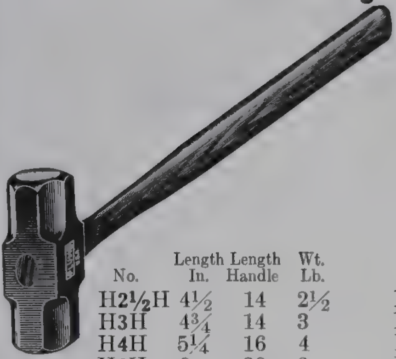


Made of special analysis steel. Full single bevel blade. Tested hickory handle. Permabond handle assembly guarantees handle to stay tight in the eye.

Packed 4 in a box.

No.......................................	**2991**	**2992**
Size.......................................	1	2
Bit..............................inches	4	4½
Handle Length...................inches	13¾	15½
Weight per Dozen...............pounds	...	...

Series H Plumb Double Face Blacksmiths' Steel Sledges



Clean to handle. Black non-rusting finish.

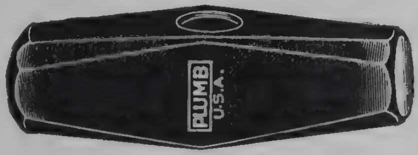
Handle made of second growth hickory with mahoganized finish.

Permabond handle assembly.

No.	Length In.	Length Handle	Wt. Lb.	No.	Length In.	Length Handle	Wt. Lb.
H2½H	4½	14	2½	H10H	7	36	10
H3H	4¾	14	3	H12H	7½	36	12
H4H	5¼	16	4	H16H	8¼	36	16
H6H	6	36	6	H20H	8¾	36	20
H8H	6½	36	8	......	...	..	..

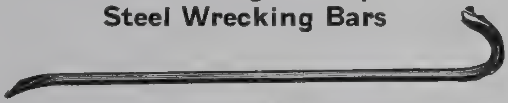
No. 860 Plumb Nevada Steel Drill Hammers

Clean to handle. Black non-rusting finish.



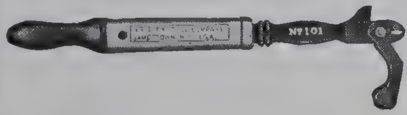
Wt. Lb.	Each	Length Inches
4	....	5¾
6	....	6½
8	....	7¼
10	....	7¾
12	....	8
16	....	8½

No. 371 Klein-Logan Carpenters' Steel Wrecking Bars



Length.............in.	12	18	24	30	36	36
Size Oct. or Hex....in.	½	⅝	¾	¾	¾	⅞
No. 371.......per doz.	**$4.80**	**8.64**	**12.96**	**15.00**	**17.28**	**24.12**

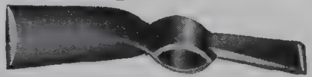
No. 101 Crescent Giant Nail Pullers



Box chisel on back of tool cuts wooden or iron hoops at one stroke. Releases barrel heads intact. Polished jaw. Rammer length, 12 in. Total length, 20 in. Packed 12 or 36 in case.

No. 101, Weight 5 Pounds.......................each **$5.95**

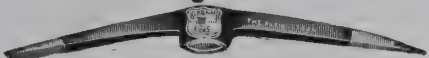
No. 1 Klein-Logan Cutter Mattocks



Good quality steel. Red finish. Packed 6 per carton.

Size Hoe...............inches	3	3½	4
No. 1...............per dozen	**$42.84**	**46.20**	**49.80**
Eye No........................	7	6	6
Weight.................pounds	3	5	6

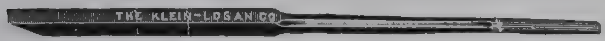
No. 30 Klein-Logan Railroad Picks



Made of steel. Adze eye No. 6.
Red painted finish.
Packed 6 per carton.

Size..........pounds	5	6	7	8	9
No. 30......per dozen	**$39.84**	**42.60**	**45.84**	**50.88**	**54.60**
Length.........inches	21	23	25	26	27

No. 260 Pinch Point Crowbars

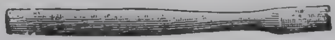


Made of good quality steel.

Weight...............pounds	12	18	22	26
No. 260..................each	**$5.16**	**6.88**	**8.32**	**10.06**
Length...................feet	4¼	5	5¼	5½
Size Stock at Point....inches	1⅛	1¼	1⅜	1½

Hickory Handles

Nail Hammer Handles



Size.......................inches	12	14	16
Per Dozen........................	....	....	....

Machinists' Hammer Handles

Size...in.	10	12	14	16	18	20	22	24
Per Doz.	....	....	....	....	....	....	....	....

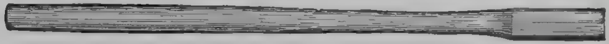
Riveting Hammer Handles

Size...in.	10	12	14	16	18	20	22	24
Per Doz.	....	....	....	....	....	....	....	....

Blacksmiths' Hammer Handles

Size.....inches	10	12	14	16	18	20	24
Per Dozen.....	....	....	....	....	....	....	....

Sledge Hammer Handles



Size.......inches	30	32	34	36	42
Per Doz.........	....	....	....	....	....

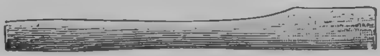
Striking Hammer Handles

Size..............inches	30	32	34	36
Per Dozen..............	....	....	....	....

Spike and Maul Handles

Size..............inches	30	32	34	36
Per Dozen..............	....	....	....	....

Half Hatchet Handles



Size..............................inches	12	14
Per Dozen..............................	....	....

Shingling Hatchet Handles

Size..............................inches	12	14
Per Dozen..............................	....	....

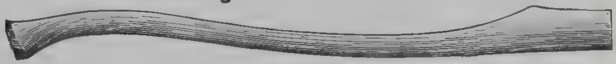
Lathing Hatchet Handles

Size..............................inches	12	14
Per Dozen..............................	....	....

Broad Hatchet Handles

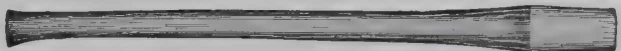
Size.....................................inches	16
Per Dozen.....................................	....

Single Bit Axe Handles



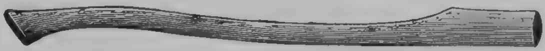
Size..............................inches	32	36
Per Dozen..............................	....	....

Double Bit Axe Handles



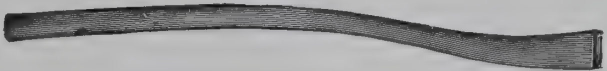
Size..............................inches	32	36
Per Dozen..............................	....	..

Boys' Axe Handles



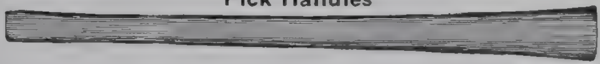
Size.....................................inches	28
Per Dozen.....................................	....

Adze Handles



Size.......................inches	32	34	36
Per Dozen......................	....	....	....

Pick Handles



Size..............................inches	36	42
Per Dozen..............................	....	....

Mattock Handles

Size.....................................inches	36
Per Dozen.....................................	....

Grub Hoe Handles

Size.....................................inches	36
Per Dozen.....................................	....

No. 1006 Stanley Screwdrivers

With Heavy Round Alloy Steel Bar

Plastic handle is unbreakable, shockproof, and will not soak up oil or water. Designed and fluted for a secure, comfortable grip.

Blade and bolster are forged in one piece. Handle and blade are permanently fastened together.

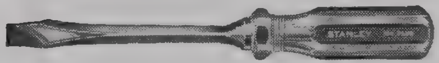
Tip is accurately machine cross-ground.

Blade.....in.	**3**	**4**	**6**	***8**	***10**	***12**
No. **1006**.....ea.	**$1.20**	**1.20**	**1.50**	**1.80**	**2.00**	**2.75**
Diameter.....in.	7/32	1/4	3/16	3/8	7/16	7/16
Overall.....in.	6½	7¾	10¼	13	15	17⅝
Weight per 6.....lb.	1¼	1¾	2¾	4	4½	5¾

*Made with nut-shaped bolster and hexagonal shank.

No. 1007 Stanley Screwdrivers

With Heavy Square Bar



Plastic handle is practically unbreakable, shockproof, and will not soak up oil or water. Designed and fluted for a secure comfortable grip.

Blade and bolster are forged in one piece. Handle and blade are permanently fastened together.

Tip is accurately machine cross-ground.

Packed 6 in a box.

Length, Blade.....inches	**4**	**6**	**8**	**10**	**12**
No. **1007**.....each	**$1.30**	**1.70**	**2.15**	**2.60**	**2.90**
Diameter.....inches	1/4	5/16	3/8	3/8	3/8
Overall Length.....inches	7¾	10¼	13	15	17½
Weight, per 6.....pounds	1¾	2¾	4	4½	5⅝

No. 1008 Stanley Electricians' Screwdrivers

Slow-burning plastic handle is break-proof, shockproof, and will not soak up oil or water. Packed 6 in a box.

Length of Blade.....inches	**3**	**6**	**8**	**10**
No. **1008**.....each	**$.95**	**1.00**	**1.05**	**1.20**
Diameter Blade.....inches	3/16	3/16	3/16	3/16
Length Overall.....inches	6½	9½	11½	13½
Weight per 6.....pounds	1	1⅝	1⅞	2

Stanley Screwdrivers

No. 2006

Blade forged from nickel molybdenum alloy steel, hardened and tempered; locked in by heavy wings on tang. Tips accurately machine cross ground to size. Polished blade. Handle of breakproof, shockproof, Tenite plastic, amber color; upper portion non-slip finish.

No.	Description	Width Blade In.	Bar In.	Length Overall In.	Wt. Oz. Each	Each
2006	Round Blade.....	3	1/4	6	3½	**$.80**
2006	Round Blade.....	4	1/4	7¾	4	**.85**
2006	Round Blade.....	6	5/16	10¼	6½	**1.15**
2006	Round Blade.....	8	3/8	13	10	**1.60**
2006	Round Blade.....	10	3/8	14½	15	**1.70**
2007	Square Blade.....	4	1/4	7¾	4	**1.05**
2007	Square Blade.....	6	5/16	10¼	6½	**1.40**
2007	Square Blade.....	8	3/8	13	10	**1.70**
2008	Round Blade.....	8	3/16	11½	4⅞	**.90**
2008	Electricians, Round Blade	3	3/16	6½	2½	**.70**
2008	Electricians, Round Blade	6	3/16	9½	4½	**.80**
2008	Electricians, Round Blade	10	3/16	13½	5	**.95**
2010	Pocket Size, N.P. Clip...	2	1/8	4⅜	1½	**.35**
2012	Close Quarter.....	1¼	1/4	3¼	1	**.70**

Stanley Composition Handle Screwdrivers

For Phillips Recessed Head Screws and Bolts

Tempered, carbon steel blade held in handle by two ears swaged on the shank.

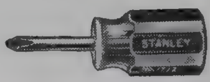
Handle is shaped and fluted for a comfortable grip.

Packed 6 in a box.

No.....	**1721**	**1722**	**1723**
Each.....	**$.55**	**.70**	**.85**
Size.....	1	2	3
Fits Phillips Screws No.....	4 and Smaller	5 to 9 Incl.	10 to 16 Incl.
Length Blade.....inches	2½	3½	5½

Stanley Composition Handle Stubby Screwdrivers

For Phillips Recessed Head Screws and Bolts



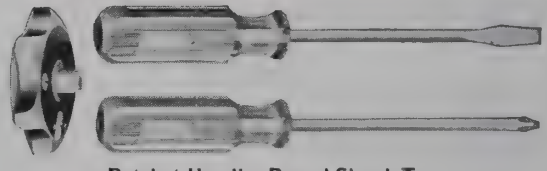
Tempered, carbon steel blade held in handle by two ears swaged on shank.

Handle is shaped and fluted for a comfortable grip.

Packed 6 in a box.

No.....	**1711**	**1712**
Each.....	**$.50**	**.60**
Size.....	1	2
Fits Phillips Screws No.....	4 and Smaller	5 to 9 Incl.
Length Blade.....inches	1	1½

Palm-Grip Ratchet Screwdrivers



Ratchet Handle; Round Shank Type, and Phillips Screwdrivers

Palm-Grip ratchet handle provides added leverage, makes the screwdriver easier to hold and twist, and guide into slot; or to twist and apply pressure at same time; allows full turning pressure at extreme end of handle. Finger-fit edges; precision machined from tough alloy steel; 3-position ratchet; a flick of finger reverses or locks the ratchet action. Quickly removable to permit use of the screwdriver as a conventional tool.

Forged alloy steel blade, fully tempered, tested and polished. Gaged, cross-ground point.

Handle is genuine bar, Tenite 11, hammerproof, shockproof and non-inflammable.

Packed 6 in a box.

Round Shank Type

No.	Each	Blade —Inches— Lgth.	Width	Wt. Lb. per Doz.
44-RC	**$1.00**	4	1/4	2
44-R	**1.00**	4	1/4	2
46-R	**1.10**	6	1/4	2¼
52-R	**1.18**	2	5/16	2
54-R	**1.25**	4	5/16	3
56-R	**1.30**	6	5/16	3½
58-R	**1.35**	8	5/16	4
66-R	**1.75**	6	3/8	4½
68-R	**1.85**	8	3/8	5½

Square Shank Type

No.	Each	Blade —Inches— Lgth.	Width	Wt. Lb. per Doz.
44-S	**$1.35**	4	1/4	3
56-S	**1.65**	6	5/16	4
68-S	**1.95**	8	3/8	6½
612-S	**2.40**	12	3/8	8½
424-S	**2.50**	24	5/16	7
		Phillips		
KP-2	**$1.25**	4½	*2	2
KP-3	**1.68**	6	*3	3½
KP-4	**2.25**	8	*4	6

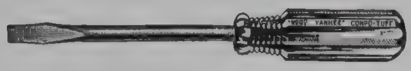
*Point size.

No. KPG-3—Palm-Grip Ratchet Only

Has ⅜-inch drive. Packed 1 in a box.

No. **KPG-3**, Weight per Doz., 5 Lb.....each **$1.95**

No. 92 Yankee Compo-Tuff Screwdrivers



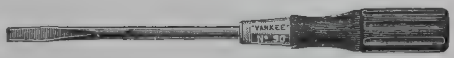
Has special alloy steel blade, properly hardened and tempered.

Blade is securely fastened in Compo-Tuff handle, a plastic material which is practically unbreakable.

Packed 6 in a box.

Blade Length..........inches	**1½**	**4**	**6**	**8**
No. **92**...... ....each	**$.80**	**.85**	**1.15**	**1.60**
Blade Diameter........inches	5/16	¼	5/16	⅜
Overall Length........inches	3 7/16	7⅝	9⅞	12 7/16
Weight per Dozen.....pounds	1¼	2¼	3¾	6

No. 90 Yankee Plain Screwdrivers



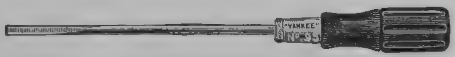
Blade and ferrule is finely polished; the handle is of hardwood with black satin finish.

Each blade individually tested.

Lgth. Blade In.	Each	Length Overall Inches	Wt., Lb. per Doz.	Lgth. Blade In.	Each	Length Overall Inches	Wt., Lb. per Doz.
1½	**$.75**	4¼	1⅛	**8**	**$1.35**	14	7
2	**.75**	5¾	1½	**10**	**1.60**	16⅜	10⅛
3	**.85**	7½	1⅞	**12**	**1.85**	18¼	11⅜
4	**.90**	9¼	2⅞	**15**	**2.35**	21⅜	13¼
5	**1.00**	10½	4¼	**18**	**3.00**	26¾	14¾
6	**1.00**	11¾	4½	..	....	....	....

No. 95 Yankee Plain Screwdrivers

Cabinet Style



Blade and ferrule finely polished. Steel blade tempered entire length and individually tested.

Handle of hardwood with black satin finish.

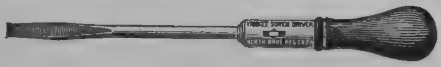
Blade and handle fastened so that they cannot be loosened.

Packed 6 in a box.

Lgth. Blade In.	Each	Length Overall Inches	Wt., Lb. per Doz.	Lgth. Blade In.	Each	Length Overall Inches	Wt., Lb. per Doz.
2½	**$.70**	6¼	1⅜	**8½**	**$1.10**	13	2⅞
3½	**.75**	7¼	1½	**10½**	**1.20**	15	3⅛
4½	**.80**	8¼	1⅝	**12½**	**1.30**	17	3⅜
5½	**.85**	9¼	1¾	**15½**	**1.55**	20	3⅞
6½	**.95**	10¼	2	....	....	..	...

No. 10A Yankee Ratchet Screwdrivers

Right and Left Hand—Rigid



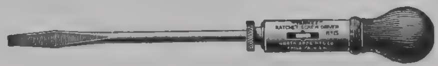
Drives or withdraws screws or is locked like plain driver, change being made instantly by simply moving shifter. Ratchet acts easily and is of durable, strong construction.

Polished hardwood handle. Blade is of special alloy steel, ground and polished and tested. Other metal parts are plated and buffed.

Adjustment for right or left hand is made by slide moved in direction of length of blade. Packed 6 in a box.

Length Blade...........in.	**3**	**4**	**5**	**6**	**8**
Each........................	**$1.80**	**1.90**	**2.00**	**2.10**	**2.40**
Overall Length..........in.	7⅝	8⅝	9½	11⅛	13½
Weight per Dozen.......lb.	4	4⅛	4⅜	6⅛	7

No. 15A Yankee Ratchet Screwdrivers



The blade is constructed with a knurled washer, by means of which it can be turned with a finger and the thumb. This permits the hand holding the handle to press steadily against the screw and prevent the screw from wabbling, while the thumb and finger can turn or ratchet the blade until screw is well started in its place. The adjustment is made by shifter. For right hand move toward blade, left hand toward handle; when placed midway, blade is rigid. Plated.

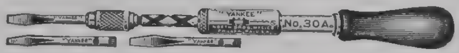
Packed 6 in box.

Length Blade..inches	**2**	**3**	**4**	**5**	**6**	**8**
Each................	**$1.70**	**1.80**	**1.80**	**1.90**	**1.90**	**2.00**
Length Overall....in.	4⅝	5⅞	6½	7¾	8¾	10⅞
Wt. per Doz.......lb.	1⅝	1¾	1⅞	2	2⅛	2⅜

Yankee Spiral Ratchet Screwdrivers

Right and left hand, and rigid. Plated. Three sizes of bits are furnished with each tool. Packed 1 in a box.

No. 30A Standard Pattern



Drives or draws screws by pushing on handle. Also has ratchet movement and can be locked rigid. Changed right to left hand or locked instantly by moving shifter.

When closed and locked, with shifter midway between ends of slot, the tool becomes rigid or as an ordinary screwdriver. Can also be made rigid with spindle fully extended and shifter midway between ends of slot. In this position it becomes especially effective to reach out-of-the-way places.

Stroke, 5¼ inches; length, closed, with bit, 13 inches; extended, 18¼ inches.

No. **30A**, Weight per Dozen, 13½ Pounds.....each **$7.10**

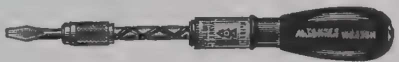
No. 31A Heavy Pattern

For large screws, as used in car shops, etc. Drives or draws screws by pushing on handle. Also has ratchet movement and can be locked rigid. Changed right to left hand or locked instantly by moving shifter. Stroke, 8¼ inches, length closed, with bit, 16¾ in.; length extended, 25 in.

No. **31A**, Weight per Dozen, 21 Pounds.......each **$9.00**

Extra bits for Nos. 30A, and 31A, $.37 each $1.10 per set of 3.

No. 133H Yankee Handyman Quick-Return Spiral Screwdrivers



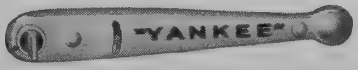
With quick-return spring. Length with bit, spiral extended, 9⅝ in.; spiral not extended, 7½ in. Net wt., 7 oz.

Packed 4 in a merchandiser. Shipping weight, 2⅜ pounds.

No. 133H.. each **$2.98**

Yankee Offset Ratchet Screwdrivers

No. 3400



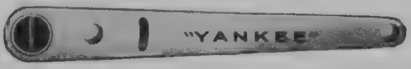
Has two blades of special alloy steel properly hardened and tempered. Works in close quarters. Drives a broad range of screws.

Blade dimensions: small blade in head, ¼ inch x .035; large blade in head, ⅜ inch x .045.

Packed 6 in box. Weight per box, ⅝ lb.

No. **3400**..each **$.90**

No. 3800



Has two blades of special alloy steel hardened and tempered. Works in close quarters. May be used on self-tapping screws.

Small blade, ⅜ inch x .045; large blade, 7/16 inch x .060.

Packed 6 in box. Weight per box, ⅞ lb.

No. **3800**..each **$1.35**

Yankee Spiral Ratchet Screwdrivers

Quick Return Type

Right and left hand, and rigid.

Has a spring in handle which causes handle to come back for the next push similar to an automatic or push drill. This is more rapid and convenient than pulling handle back.

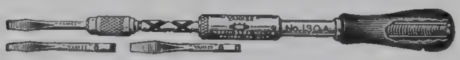
This feature is especially valuable in driving screws in narrow or deep places where the left hand cannot hold chuck on end of tool. The spring keeps bit in position as it forces the handle back for the next stroke.

Plated finish.

Three bits of different widths included with each tool.

Packed 1 in a box.

No. 130A Standard Pattern

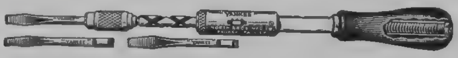


Extreme length with bit in chuck, 14¾ inches closed, 20 inches extended. Weight per dozen, 15 pounds.

Packed 1 in a box.

No. 130A....................................each **$7.70**

No. 131A Heavy Pattern



Extreme length with bit in chuck, 19⅜ inches closed, 28 inches extended. Weight per dozen, 24 pounds.

No. 131A..................................each **$9.60**

No. 135, Light Pattern—For Small Screws

For electrical and similar work. Much lighter and more sensitive than No. 130A.

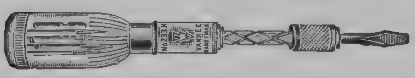
Extreme length with bit in chuck: 10¼ inches closed, 13½ inches extended. Weight per dozen, 8¼ pounds.

No. 135...each **$6.70**

Extra bits for Nos. 130A, 131A and 135, $.37 each; $1.10 per set of 3.

No. 233H Yankee Handyman Spiral Ratchet Screwdrivers

Transparent Handle



For driving screws, drilling holes and drawing screws. Has quick return spring in handle.

Transparent magazine handle contains: 1 each drill point, 5/64H, 7/64H, and 9/64H inches; 5/32 inch bit for small screws; ¼ inch bit supplied in chuck of driver.

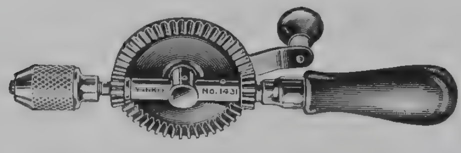
Length with bit, spiral not extended, 8 inches; spiral extended 10 inches.

Packed 4 in a merchandiser.

Shipping weight, 2½ pounds.

No. 233H....................................each **$4.75**

No. 1431A Yankee Radio Drills



Single-speed plain hand drills, with 3-jaw chuck for round shank drills only. Plated steel frame and chuck.

Solid grip-handle of polished hardwood.

Two steel pinion gears support main driving gear.

Capacity of chuck, 9/32 inch.

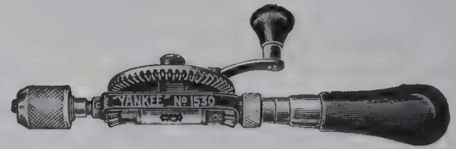
Length overall, 9⅜ inches.

Weight each, 1⅛ pounds.

No. 1431A..................................each **$7.50**

No. 1530A Yankee Single Speed Ratchet Hand Drills

Chuck Capacity, Round Shanks Up to 9/32 Inch



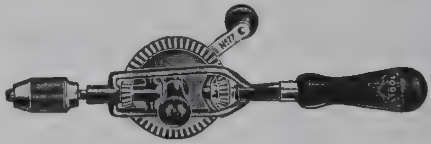
Designed for use by mechanics in all fields and by the home craftsman. Compact and convenient.

Has five ratchet adjustments. With 3-jaw chuck. All bright metal parts are plated.

Packed 1 in a box.

No.		**1530A**
Each		**$10.50**
Overall Length	inches	10½
Weight	pounds	1¼

No. 77A Millers Falls Hand Drills



Idler Pinion

Capacity, 0 to ¼-inch round shank drills.

Three-jaw chuck, protected springs; cut gears; steel pinion.

Malleable iron frame, enameled black; large gear, enameled red; solid end handle and side handle of stained hardwood.

Chuck is nickeled. Two steel pinions, drive and idler.

Length, 12½ inches.

Packed 1 in a box.

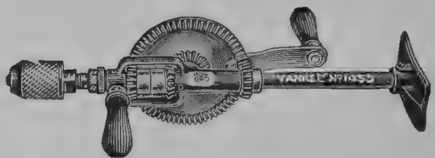
Weight each, 1 pound, 6 ounces.

No. 77A......................................each **$3.70**

No. 1455 Yankee Plain Breast Drills

Capacity: ½-Inch Round Shank Drills

Screwdriver Bit in Side Grip Handle



Three-jaw chuck. Two speeds, changed by moving small shifter on main frame. Speed changed without removing drill from work. Steel spindle, adjustable ball bearings. Cut gears; steel pinions.

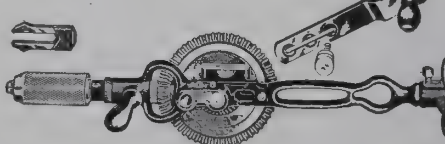
Black malleable iron frame; bright parts polished and plated. Side handle has screwdriver bit to adjust screws. Adjustable breast plate with polished face.

Length, 16¾ inches.

Packed 1 in a box. Weight, 5¾ lb.

No. 1455.......................................each **$20.90**

No. 12 Millers Falls Breast Drills

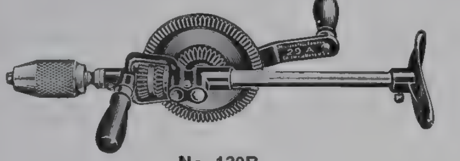


Capacity, ⅛ to ½-inch round bit and No. 1 Morse taper shanks. Two-jaw Master chuck; protected springs; 2 speeds—gear ratios even and 3 to 1; speed changed by pressing spring and shifting large gear. Annular ball bearing spindle and ball thrust bearing with take up nut to provide for wear; cut gears; steel pinion; idler roll to equalize bearing. Stained hardwood handles; crank handle extensible, 4 to 6-inch radius. Black enameled, malleable iron frame and adjustable breastplate; level attached. Red enameled large gear; other parts nickeled. Length, 17½ inches.

No. **12**. Weight, 6½ Pounds.........................each **$11.00**

Millers Falls Breast Drills

Capacity: No. 119A, ⅛ to ½-inch round and No. 1 Morse taper shanks, and regular square bit brace shanks; No. 120 B, ½-inch round shank drills



No. 120B

Black enameled frame. Breast plate connected by solid steel shank. Two speeds with ratios of 3:1 and 1:1.

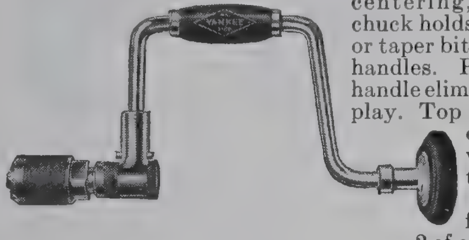
No. 119A has 2-jawed chuck. No. 120B has Millers Falls 3-jawed chuck with protected springs.

Packed 1 in a box.

No.	119A	120B
Each	$7.50	7.50
Capacity	Universal	½-Inch
Length ... inches	18¼	16½
Weight ... pounds	5	4¾

No. 2101 Yankee Ratchet Bit Braces
Industrial Type
Bit Capacity Up to ½ Inch

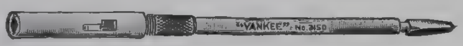
Ratchet case is dust and moisture proof. Tool steel pawls, hardened and tempered. Quick, positive shifter. Quick centering, ball bearing chuck holds round, square, or taper bits. Hard rubber handles. Patented sweep handle eliminates excessive play. Top handle screwed on handle quill with heavy thread.



Dull nickel finish. Packed 2 of one size in a box.

Sweep ... inches	8	10	12	14
No. 2101 ... each	$14.00	14.00	14.30	14.90
Ship. Wt. per 2 ... pounds	6⅝	7	7¼	8⅛

No. 2150 Yankee Bit Extensions



The chuck is so constructed that it will accommodate a large range of square shanks and hold them securely. Square shank is held firmly by the socket.

A Yankee feature prevents jamming of the bit in the socket. The taper end of the shank is accurately machined. Bits will not loosen and come out while in use.

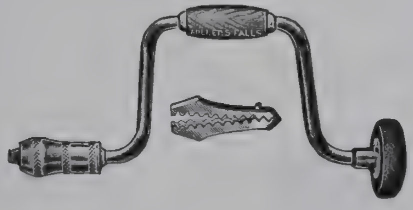
Plated throughout with high polish on sleeve.

Made to follow ¹¹⁄₁₆-inch bit or larger.

Individually packed in a box.

Size ... inches	15	18	21	24
No. 2150 ... each	$5.00	5.10	5.30	5.60
Net Weight ... pounds	1	1⅛	1¼	1½

No. 142 Millers Falls Plain Braces

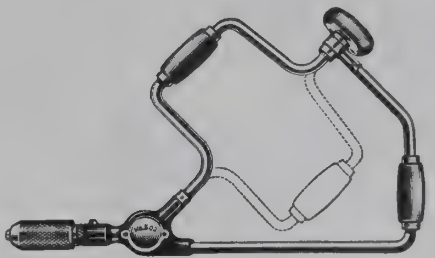


Stained hardwood head and handle. Exposed metal parts polished. Barber chuck. Cast alligator jaws. Plain bearing head. Sweep, 10 inches.

Packed 6 in a box. Weight, 1¾ pounds.

No. **142** ... each **$3.00**

No. 502 Millers Falls Corner Braces

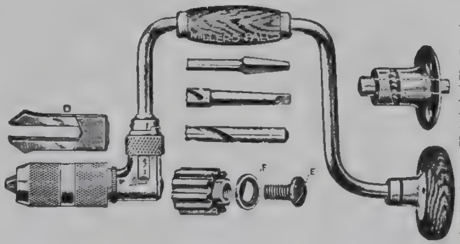


Capacity, ⅛ to ½-in. round, bit shanks and No. 1 Morse taper shanks. Master chuck. Casehardened gears, enclosed for protection. Ball thrust bearing at base of chuck. Hardened steel bushings at chuck spindle and sweep. Ball-bearing head. Stained hardwood handles, free acting, with inserted metal rings. Exposed metal parts nickel-plated, hub casting japanned. Sweep, 10 inches. Length, 17 inches.

Packed 2 in a box; weight, 8 pounds.

No. **502** ... each **$15.00**

Millers Falls Ratchet Bit Braces



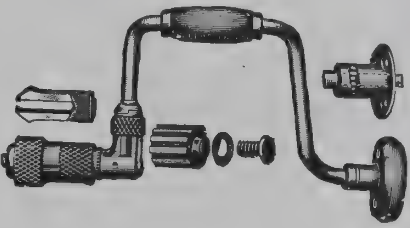
Equipped with master chuck holding square, No. 1 Morse taper and plain round shanks from ⅛ to ½ inch diameter. Boxed ratchet mechanism with ring shift. Steel clad ball bearing head. Tropical hardwood head and handle. Handle has inserted metal rings. Exposed metal parts polished, nickel-plated and buffed. Packed 2 in a box.

No.	730	731	732	733
Each	$10.80	9.80	9.55	9.55
Sweep ... inches	14	12	10	8
Weight ... pounds	3½	3¼	3⅙	2¾

Millers Falls Ratchet Bit Braces

Has tropical hardwood head and handle.

Exposed metal parts nickel plated and buffed. Has Lion ball bearing chuck. Jaws have parallel milled grooves which grip along their entire length.



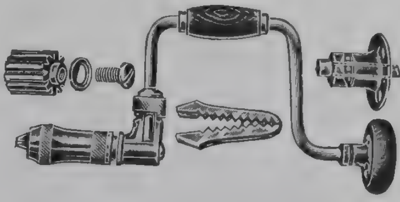
Holds bit shanks, round from ⅛ to ½ inch and No. 1 Morse taper shanks.

Boxed ratchet.

Packed 2 in a box.

No.	770	771	772
Each	$11.40	10.70	10.30
Sweep ... inches	14	12	10
Weight per Box ... pounds	8	7	6¾

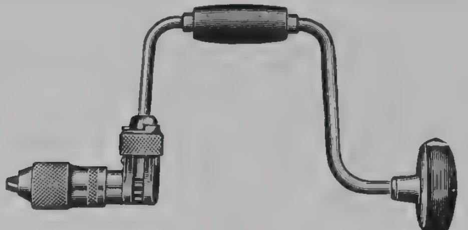
Millers Falls Ratchet Braces



For square shank bits. Has ebonized hard wood heads and handles. Boxed ratchet with ring shift. Barber chuck. With self-opening, forged steel alligator jaws. Ball bearing steel clad head. Handle has inserted metal rings. Exposed parts polished, plated and buffed. Packed 2 in a box.

No.	1321	1322	1323	1324
Each	$8.50	8.20	8.20	8.20
Sweep ... inches	12	10	8	6
Weight ... pounds	3	2¾	2½	2¼

Millers Falls Ratchet Bit Braces



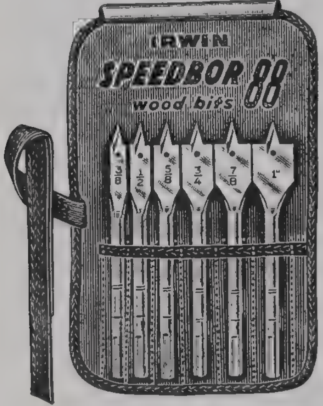
Has Barber chuck with alligator jaws, and a semi-boxed ratchet. Steel clad, ball-bearing head; forged jaws.

Exposed metal parts nickeled and buffed. Head and handle mahogany finished hardwood. Packed 6 in a box.

No.	**1708**	**1710**	**1712**
Each	**$4.70**	**4.70**	**5.00**
Sweep . . . inches	8	10	12
Weight . . . pounds	2½	2½	2¾

Irwin Speedbor 88 Wood Bit Roll Sets

For ¼-Inch Electric Drills and Drill Presses



No. 886-R

Made of special high carbon steel and hardened and tempered full length.

Hollow ground point. Precision ground shank; all three flats on shank are accurately spaced to fit conventional 3-jaw chucks.

Size markings are included on both sides of spade-type head.

Shank fits perfectly in ¼, ⁵⁄₁₆, ⅜ and ½-inch adjustable electric drills and drill press chucks.

Overall length, 6⅛ inches.

Packaged one set per box.

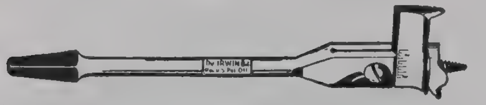
No.	884-R	886-R
Each	**$2.00**	**2.93**
No. in Set	4	6
Bit Sizes . . . in.	⅜, ½, ⅝, ¾	⅜, ½, ⅝, ¾, ⅞, 1
Weight . . . lb.	½	¾

Individual Bits

Packed 6 per box.

Size Inches	Dozen	Weight Pounds per Dozen	Size Inches	Dozen	Weight Pounds per Dozen
⅜	**$5.60**	1	¾	**$5.60**	1¼
⁷⁄₁₆	**5.60**	1¼	¹³⁄₁₆	**5.60**	1½
½	**5.60**	1¼	⅞	**5.60**	1½
⁹⁄₁₆	**5.60**	1¼	¹⁵⁄₁₆	**5.60**	1½
⅝	**5.60**	1¼	1	**5.60**	1½
¹¹⁄₁₆	**5.60**	1¼	.....	....	...

Irwin Lockhead Expansive Bits



This bit eliminates loose plates and holds the blade in a solid clamping device which is part of the head.

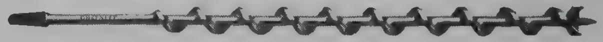
Made of special steel, heat treated; blades are tempered. Packed 1 in a box.

No.	**1**	**2**
Per Dozen	**$19.06**	**23.00**
Cutting Range . . . inches	⅝ to 1½	⅞ to 3
Weight per Doz . . . pounds	4½	6¼

Extra Blades

No.	1S	2S	3L	4L
Per Dozen	**$.35**	**.43**	**.59**	**.68**
Cutting Range . . . inches	⅝–1	1–1½	⅞–1½	1½–3
For Bit No.	1	1	2	2

No. 56 Greenlee Solid-Center Car Bits



Has a twist 12 inches long and an overall length of 17 to 18 inches. Head is of the extension-lip pattern and is fitted with a medium coarse screw point.

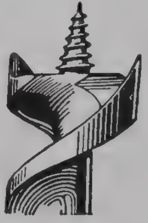
Made of carbon steel; completely polished with exception of square which is lacquered green.

Single spiral and center stem give a broad channel for clearance and elevation of chips.

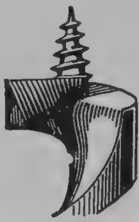
Packed 6 in a box.

Sizes in 16ths Inches	Each	Wt. Lb. per Doz.	Sizes in 16ths Inches	Each	Wt. Lb. per Doz.	Sizes in 16ths Inches	Each	Wt. Lb. per Doz.
6	**$1.75**	2¾	**11**	**$2.25**	6	**16**	**$3.35**	9½
7	**1.75**	3¼	**12**	**2.40**	6½	**17**	**3.75**	11
8	**1.80**	4	**13**	**2.60**	7½	**18**	**4.10**	12
9	**1.90**	5	**14**	**2.95**	8½	**20**	**4.65**	14½
10	**2.05**	5½	**15**	**3.10**	9	..	....	....

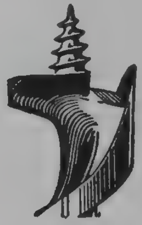
Irwin Car Bits



No. 65-T
Double Cutter
Extension Lip



No. 55-T
Single Cutter
Ship Head



No. 35-T
Single Cutter
Extension Lip

Forged from special bit steel, solid center type. Heat treated full length and oil finished.

No. 65-T. For carpenter work, especially for long holes.

No. 55-T. Widely used for construction and repair work.

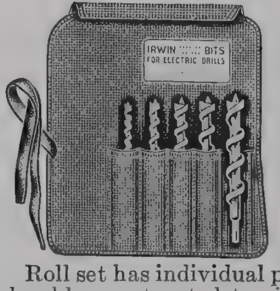
No. 35-T. Recommended for use by electricians and utility workers, etc., where long holes are required.

Length overall, 18 inches; length of twist, 12 inches.

Sizes in 16ths Inch	No. 65-T per Doz.	No. 55-T per Doz.	No. 35-T per Doz.	No. in Box	Wt. Lb. per Doz.	Sizes in 16ths Inch	No. 65-T per Doz.	No. 55-T per Doz.	No. 35-T per Doz.	No. in Box	Wt. Lb. per Doz.
4	**$13.00**	**$14.40**	**$13.12**	6	3	**13**	**$15.93**	**$18.40**	**$17.33**	6	9
5	**13.00**	**14.40**	**13.12**	6	3	**14**	**17.33**	**19.06**	**18.00**	6	10
6	**12.00**	**13.12**	**12.64**	6	4	**15**	**18.66**	**20.53**	**19.40**	6	10
7	**12.00**	**13.76**	**12.96**	6	4	**16**	**20.00**	**22.00**	**20.80**	6	11
8	**12.00**	**13.76**	**12.96**	6	5	***17**	**21.93**	.....	.....	3	12
9	**12.46**	**14.56**	**13.28**	6	6	**†18**	**23.79**	**26.20**	.....	3	13
10	**13.33**	**15.36**	**13.92**	6	7	**†20**	**27.46**	**30.26**	.....	3	14
11	**14.33**	**15.84**	**15.20**	6	7	***22**	**32.00**	.....	.....	3	15
12	**14.80**	**16.80**	**15.94**	6	8	***24**	**36.00**	.....	.....	3	17

*Available in No. 65T only.
†Available in No. 55T and 65T only.

No. 62RB Irwin Auger Bit Roll Sets



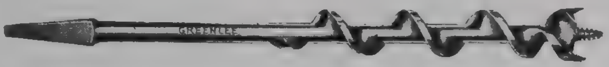
Roll set consists of five ¼-inch electric drill bits.

Holes as large as ¾-inch can now be easily bored with these small ¼-inch electric home drills. Bits will bore cleaner, deeper, faster than conventional types of ¼ to ¾-inch sizes. Bits have a 4-inch twist and are 6¼ inches overall length. Each auger bit is polished and heat treated full length.

Roll set has individual pockets for all bit sizes. Practical, durably constructed to give long and satisfactory service. Packed 1 set in a box. Weight per set, ¾ pound.

No.	**62RB1**	**62RB2**
Each	**$3.07**	**3.33**
Bit Sizes . . . in.	¼, ⁵⁄₁₆, ⅜, ⁷⁄₁₆, ½	¼, ⅜, ½, ⅝, ¾

No. 22 Greenlee Solid Center Auger Bits



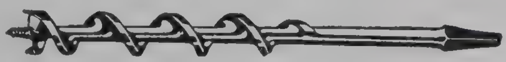
A single spiral bit for general woodworking requirements. Has a double-cutter head with extension lips. Fitted with medium-pitch screw point. Center stem gives added stiffness. Twist and round are highly polished; square is forge black.

Sizes ½-inch and smaller packed ½ dozen in a box; larger sizes, ¼ dozen per box.

Size in 16ths In.	Each	Lgth. of Twist Inches	*Over-all Length Inches	Wt. Lb. per Doz.	Size in 16ths In.	Each	Lgth. of Twist Inches	*Over-all Length Inches	Wt. Lb. per Doz.
4	**$.80**	3⅜	7½	1	**13**	**$1.15**	4⅜	8⅝	3¾
5	**.80**	3½	7⅝	1¼	**14**	**1.15**	4½	8¾	4
6	**.80**	3⅝	7¾	1½	**15**	**1.30**	4⅝	8⅞	4½
7	**.85**	3¾	7⅞	1¾	**16**	**1.30**	4¾	9	4¾
8	**.90**	3⅞	8	2	**17**	**1.65**	4⅞	9¼	6
9	**.95**	3⅞	8⅛	2¼	**18**	**1.65**	4⅞	9¼	6½
10	**.95**	4	8¼	2½	**20**	**1.85**	4⅞	9¼	7¼
11	**1.05**	4⅛	8⅜	3	**22**	**2.15**	5	9½	7½
12	**1.05**	4¼	8½	3½	**24**	**2.35**	5	9½	8½

*Cutting edge to end of shank, screw point not included.

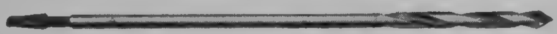
No. 62T Mainbor Auger Bits



Special bit steel; smooth finish.
Sizes 4⁄16 to 16⁄16 packed 6 in a box; larger sizes 3 in a box.

Size in 16ths Inches	Per Dozen	Wt. Lb. Per Dozen	Size in 16ths Inches	Per Dozen	Wt. Lb. Per Dozen
4	**$6.40**	1	**13**	**$8.80**	4
5	**6.40**	1	**14**	**8.80**	4
6	**6.40**	1	**15**	**9.92**	5
7	**6.80**	2	**16**	**9.92**	6
8	**7.12**	2	**18**	**11.68**	6
9	**7.44**	2	**20**	**13.28**	8
10	**7.44**	3	**22**	**15.20**	9
11	**8.16**	3	**24**	**17.12**	10
12	**8.16**	4	..	.....	..

No. 114E Cleveland Bell Hangers' and Electricians' Bits



Carbon steel; designed for use in drilling through walls, floors, and ceilings to aid in wiring and similar work. Taper square shank, 3⁄16x⅜x1¼ inches long.

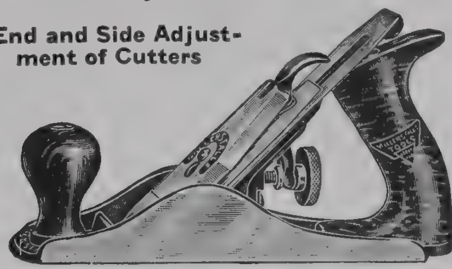
Diam. In.	Decimal Equiv. In.	12-Inch Lgth. Flute In.	12-Inch Each	18-Inch Lgth. Flute In.	18-Inch Each	24-Inch Lgth. Flute In.	24-Inch Each
3⁄16	.1875	3¼	**$1.21**	3¾	**$1.63**	4¼	**$2.05**
¼	.2500	3¾	**1.29**	4¼	**1.71**	4¾	**2.13**
5⁄16	.3125	4¼	**1.42**	4¾	**1.78**	5¼	**2.20**
⅜	.3750	4⅝	**1.53**	5⅛	**1.98**	5⅝	**2.38**
7⁄16	.4375	4⅞	**1.71**	5⅜	**2.13**	5⅞	**2.54**
½	.5000	5⅛	**1.98**	5⅝	**2.38**	6⅛	**2.79**
9⁄16	.5625	5⅜	**2.20**	5⅞	**2.64**	6⅜	**3.03**
⅝	.6250	5½	**2.48**	6	**2.92**	6½	**3.32**
¾	.7500	5¾	**3.12**	6¼	**3.52**	6¾	**3.96**

MATERIAL NOT LISTED

We can furnish many items
not listed in this catalog.
Please send us all your inquiries.

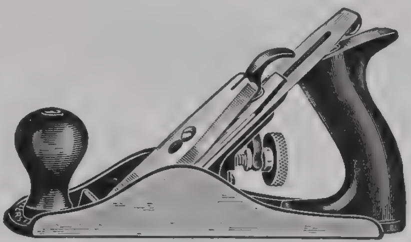
Millers Falls Adjustable Smooth Iron Planes

End and Side Adjustment of Cutters



	Smooth Bottom	Smooth Bottom	Corrugated Bottom	Corrugated Bottom
No.	**9**	**10**	**9C**	**10C**
Each	**$9.00**	**10.70**	**9.20**	**11.00**
Length ... inches	9	10	9	10
Cutter ... inches	2	2⅜	2	2⅜
Weight ... pounds	3¾	4½	3¾	4½

No. 900 M-S Smooth Planes



Bottom and frog fine grey iron castings. Bottom and sides milled and polished. Inside black enameled.

Plane iron of good quality steel, carefully hardened and tempered.

Lever side adjustment of cutter. Screw end adjustment of cutter. Clamp lever handle red. Hardwood handles and knobs with black lacquer finish.

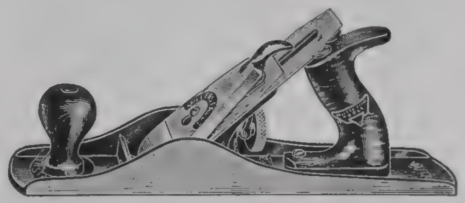
Length 9 inches; cutter 2 inches.

Packed 1 in a box. Weight 3⅝ pounds.

No. **900** .... each **$4.25**

Millers Falls Adjustable Iron Jack Planes

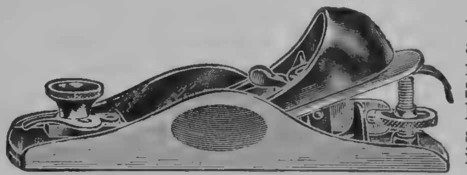
End and Side Adjustment of Cutters



	Smooth Bottom	Smooth Bottom	Smooth Bottom	Corrugated Bottom	Corrugated Bottom
No.	**11**	**14**	**15**	**14C**	**15C**
Each	**$9.35**	**9.75**	**12.70**	**9.95**	**13.00**
Length ... inches	11½	14	15	14	15
Cutter ... inches	1¾	2	2¼	2	2¼
No. in Box	1	1	1	1	1
Weight ... pounds	3¾	5⅛	6¼	5⅛	6¼

Millers Falls Adjustable Block Planes

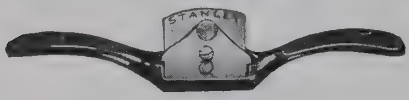
A light plane for working across the grain. Bevel of cutter is on upper side and iron is set at an angle of 20° to bottom.



Adjustable throat with end and side adjustment of cutter. Solid piece, fine high carbon steel cutter, 1⅝ inches. Cast caps with lever cam lock. Bottoms and sides nicely polished. Inside of bottoms finished in glossy black enamel. Enamel trimming.

No.	**16**	**17**
Each	**$4.90**	**5.10**
Length ... inches	6	7
Weight ... pounds	1½	1⅝

No. 51 Stanley Raised Handle Spoke Shaves

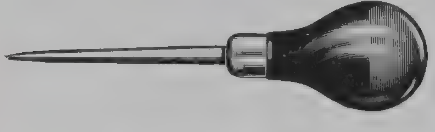


Cutter and cap iron fastened by thumb screw, which brings even pressure on cutter edge. Length handle, 10 inches; 2⅛-inch cutter, japanned. Weight, per ½ dozen, 4⅛ pounds. Packed 6 in a box.

No. 51....................................each **$1.40**
Extra Blades..............................each **.35**

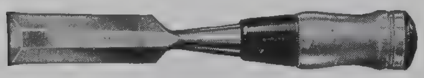
No. 10 M-F Scratch Awls

Carefully tapered, pointed and polished steel blade. Nickel-plated ferrule. Hardwood handle, red and black lacquer finish.



Packed 12 in a box.
Blade....in. **2⅝**
No. **10**
...per doz. **$2.90**
Wt.,Doz.oz. 14

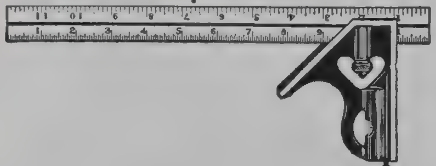
No. 60 Stanley Tang Butt Chisels



Thin blade, 3 inches long, and tang forged from one piece of fine chisel steel. Polished high color mirror finish. Handle made of Stanoloid, a tough non-metallic substance. Upper portion of handle is transparent amber; lower portion is opaque black. Two long forged ears on the tank lock the handle against turning and eliminate loose handles.

Width Blade.....in.	**¼**	**⅜**	**½**	**⅝**	**¾**	**1**	**1¼**	**1½**	**2**
Each..........	**$2.40**	**2.40**	**2.50**	**2.60**	**2.60**	**2.90**	**3.20**	**3.70**	**4.30**
Length Overall...in.	7⅞	7⅞	7⅞	8¼	8¼	8⅜	8½	9	9
No. per Box...	2	2	2	2	2	2	2	2	2
Wt. per 6....lb.	1⅜	1½	1¾	1⅞	2	2¼	3	3⅝	4½

Millers Falls Carpenter's Combination Squares

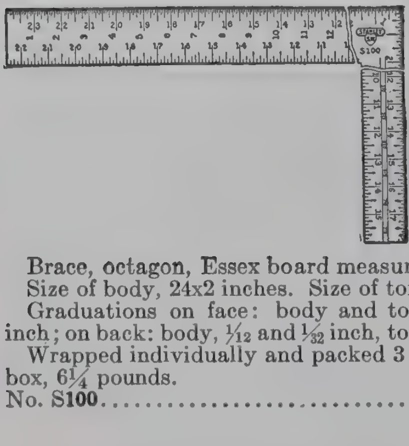


Can be used as try square, mitre square, depth gage, marking gage, or as level or plumb. Steel blade, 1-inch wide, accurately graduated, clearly etched in 8ths and 16ths on one side and 16ths and 32nds of an inch on the other.

Beam has accurately milled working faces with polished edges and black enameled web. Cat's-eye level vial. Well-pointed scriber. Knurled thumb nut. Packed 1 in a box.

No. **9500**, 9-Inch Blade; Weight, 14 Oz.........each **$1.70**
No. **1200**, 12-Inch Blade; Weight, 15 Oz.........each **1.80**

No. S100 Stanley Stainless Steel Squares

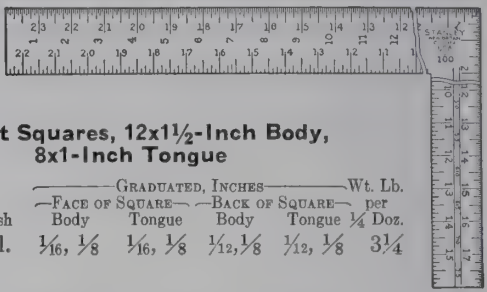


Stainless steel which will not rust or tarnish, insuring durability and clean readable markings. Corners specially hardened and is tapered in thickness from the angle outward.

Brace, octagon, Essex board measure and 100th scale. Size of body, 24x2 inches. Size of tongue, 16x1½ inches. Graduations on face: body and tongue each 1/16 and ⅛ inch; on back: body, 1/12 and 1/32 inch, tongue, 1/10 and 1/12 inch. Wrapped individually and packed 3 in a box; weight per box, 6¼ pounds.

No. **S100**..each **$7.70**

Stanley Carpenters' Steel Squares



1-Foot Squares, 12x1½-Inch Body, 8x1-Inch Tongue

			Graduated, Inches				Wt. Lb.
			Face of Square		Back of Square		per
No.	Each	Finish	Body	Tongue	Body	Tongue	¼ Doz.
12	**$2.40**	Pol.	1/16, ⅛	1/16, ⅛	1/12, ⅛	1/12, ⅛	3¼

2-Foot Square, 24x2-Inch Body, 16x1½-Inch Tongue

Brace, Octagon and Essex Board Measure and 100ths Scale

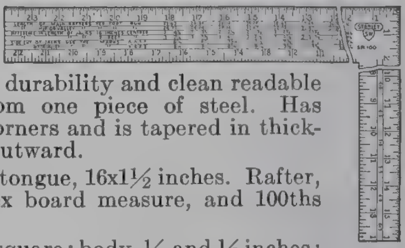
			Graduated, Inches				Wt. Lb.
			Face of Square		Back of Square		per
No.	Each	Finish	Body	Tongue	Body	Tongue	¼ Doz.
100	**$4.00**	Polished	1/16, ⅛	1/16, ⅛	1/12, 1/32	1/10, 1/12	6¼
100B	**4.40**	Blued	1/16, ⅛	1/16, ⅛	1/12, 1/32	1/10, 1/12	6¼
Brace and Essex Board Measure							
3	**$3.50**	Polished	1/16, ¼	1/16, ¼	1/12, ¼	1/12, ¼	6¼
3B	**3.90**	Blued	1/16, ¼	1/16, ¼	1/12, ¼	1/12, ¼	6¼
Essex Board Measure							
14	**$3.30**	Polished	⅛, ¼	⅛, ¼	¼	¼	6¼
14B	**3.70**	Blued	⅛, ¼	⅛, ¼	¼	¼	6¼

Rafter or Framing Squares, 24x2-Inch Body, 16x1½-Inch Tongue

Rafter or Framing, Brace, Octagon, Essex Board Measure and 100ths Scale

R100	**$4.00**	Polished	1/16, ⅛	1/16, ⅛	1/12, 1/32	1/10, 1/12	6¼
R100B	**4.50**	Blued	1/16, ⅛	1/16, ⅛	1/12, 1/32	1/10, 1/12	6¼
R100C	**5.20**	RoyalCopper	1/16, ⅛	1/16, ⅛	1/12, 1/32	1/10, 1/12	6¼

No. SR100 Stanley Carpenters' Stainless Steel Framing Squares



Made from a special stainless steel that will not rust or tarnish thus insuring durability and clean readable markings. Made from one piece of steel. Has specially hardened corners and is tapered in thickness from the angle outward.

Body, 24x2 inches; tongue, 16x1½ inches. Rafter, brace, octagon, Essex board measure, and 100ths scale.

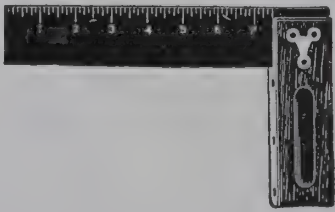
Graduated, face of square: body, 1/16 and ⅛ inches; tongue, 1/16 and ⅛ inches. Graduated, back of square: body, 1/12 and 1/32 inches; tongue, 1/10 and 1/12 inches.

Packed 3 in a box.

Weight per box, 6¼ pounds.

No. **SR100**, Polished Finish....................each **$8.00**

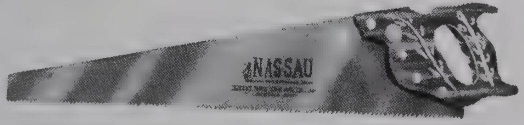
No. 20 Stanley Try Squares



Edge of blade machined and square inside and out. Regularly graduated in eighths of an inch, but can be furnished with metric graduations without additional charge. Rosewood handle, brass face plate, gun black finish on blade. Packed 6 in a box.

Length Blade.............inches	**6**	**8**	**10**	**12**
No. **20**.....................each	**$2.20**	**2.40**	**2.70**	**3.50**
Size Handle..............inches	4½	5⅜	6	7
Weight per Half Dozen...pounds	2⅛	3⅛	3¾	4½

No. N26 Great Neck Nassau Hand Saws



Full 4-gage taper ground saw. Scientifically hardened and tempered special analysis tool steel blade, precision set and bevel filed. Polished to a high mirror finish, striped back.

Carved handle made of select natural beech, lacquered and weatherproof finished. Four nickel-plated screws and medallion that cannot work loose.

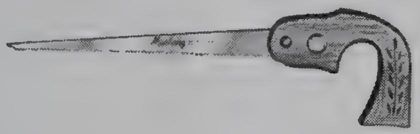
Length, 26 inches. Points per inch: cross cut, 7-8-9-10; rip, 5½.

Packed ½ dozen per box.

Weight per dozen, 22 pounds.

No. **N26**, Skew Back	each	**$5.45**
No. N26S, Straight Back	each	**5.45**

No. M2 Great Neck Mustang Compass Saws



For tough and heavy cutting.

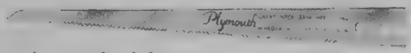
Extra heavy blade, highly polished, hardened and tempered. Evenly toothed to the point; permits easy access to holes. Teeth are precision set 8 points to the inch.

Carved, lacquered wood handle. Heavy plated screw and medallion.

Packed ½ dozen per box.

Length Blade	inches	10	12	14
No. M2	each	**$.98**	**.98**	**1.10**
Weight per Dozen	pounds	6	8	8½

Great Neck Compass Saw Blades



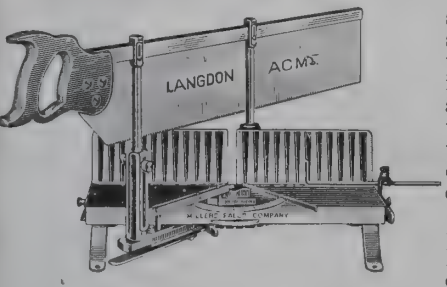
Slotted and punched butt will fit the average compass saw handle. Packed 1 dozen per box.

No.		*P10	P12	P14
Each		**$.53**	**.59**	**.65**
Length	inches	10	12	14

*Keyhole blade.

Millers Falls Langdon Acme Mitre Boxes

Capacity: Right angles, 10½ inches; mitre, 7¼ inches. Thumb lever locks or releases saw supports at any angle.



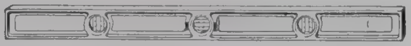
Oilite bearing steel saw guides; steel swinging lever and posts; improved angle and length attachments; graduated arc and index plate. Notched bed plate: positive lock at most used angles. Has high grade, tested saw.

Steel bottom plates red enameled; bed, legs, swinging lever and posts gray enameled; other parts nickel-plated.

No.	72C	73C	74C	75C	*1071C	*1074C
Each	**$57.00**	**61.00**	**63.00**	**68.00**	**43.00**	**45.00**
Dimension Saw. in.	24x4	26x4	28x5	30x5	4	5
WEIGHT, POUNDS						
Net Weight		27½	28	29	29½	25
Shipping Weight		33½	34	37	37½	29

*Furnished without saw.

Sand's Carpenters' Aluminum Levels



No. 24

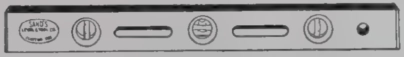
No. 18, 4-glass level, has 2 plumbs and 2 levels. All other numbers have 4 plumbs, 2 levels, protected glasses.

Will plumb any end or level any edge up. This allows overhead use. Can be read in any position, high or low, up or down, at arm's length.

Size, 2¼ x 1⅛ inches.

No.		18	24	26	28	30
Each		**$5.80**	**6.80**	**7.30**	**7.80**	**8.40**
Length	inches	18	24	26	28	30
Weight	pounds	1¾	2	2¼	2½	2¾

Sand's Carpenters' Wood Levels



No. 118

This level is reversible and will plumb either end, or level either edge up.

Two single plumbs, 1 double level, protected glasses.

Size, 2½x1⅛ inches. Boxed individually.

Size	inches	24	28	30
No. **118**	each	**$3.90**	**4.10**	**4.30**
Weight per Dozen	pounds	16	18	19

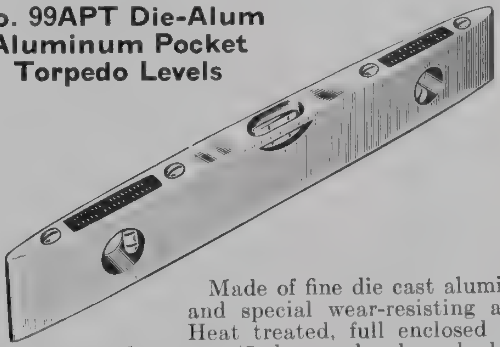
No. 118-BE

Level is reversible and will plumb either end, or level either edge up.

Two single plumbs, 1 double level, protected glasses. Brass ends. Size, 2½x1⅛ inches. Boxed individually.

Size	inches	24	28	30
No. 118-BE	each	**$4.70**	**4.90**	**5.10**
Weight per Dozen	pounds	18	20	21

No. 99APT Die-Alum Aluminum Pocket Torpedo Levels



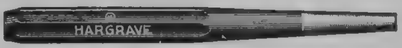
Made of fine die cast aluminum and special wear-resisting alloy. Heat treated, full enclosed flush body. Has three glasses; a 45 degree, level, and plumb. Bottom is grooved for rod pipe and shaft.

Individually boxed.

No. **99**APT, Weight 4 Ounces each **$2.50**

No. 263 Hargrave Solid Punches

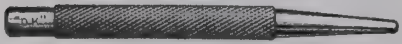
Load Tested



Trip-hammer forged from special analysis alloy steel, hammer tested. Octagon handle.

Size Point In.	Each	Lgth. In.	Diam. Steel In.	Taper Inches	No. in Box	Wt. per Doz. Lb.
1/16	**$.46**	4	¼	1 21/32	12	¾
⅛	**.48**	4½	5/16	1 31/32	12	1
5/32	**.50**	5	⅜	2 9/16	12	1½
3/16	**.54**	5½	⅜	2 29/32	12	1¾
¼	**.60**	6	½	3 3/16	6	3¼
5/16	**.68**	6½	½	3⅜	6	3¾
⅜	**.80**	7	⅝	3¾	6	6½
½	**.96**	8	⅝	5	6	8

No. 310 O.K. Nail Sets



In bright or blued finish. Packed 1 dozen in a box.

Points......inches	1/32	2/32	3/32	4/32	5/32
No. **310**......per dozen	**$3.00**	**3.00**	**3.00**	**3.00**	**3.00**
Body......inches	9/32	5/16	5/16	5/16	5/16
Length......inches	4	4	4	4	4
Weight per Dozen...ounces	13	13	13	13	13

No. 2873 Hargrave Prick Punches

Load Tested

Hand forged from special analysis alloy steel. Finished with bright, dark blue lacquered body and polished blade.

Diameter of Steel......inches	1/4	3/8	1/2
No. **2873**......each	**$.54**	**.58**	**.68**
Length......inches	3 1/2	5 1/2	6
Weight per Dozen......pounds	3/4	1 3/4	3 1/4

No. 284 Hargrave Center Punches

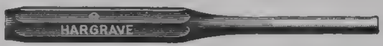
Load Tested

Forged from special analysis alloy steel; hammer tested.

Diameter of Steel......inches	1/4	5/16	3/8	1/2	5/8
No. **284**......each	**$.46**	**.50**	**.50**	**.68**	**.94**
Length......inches	3 1/2	4	5	6	7
Weight per Dozen......pounds	3/4	1	1 3/4	3 3/4	6 3/8

Hargrave Pin Punches

Load Tested



No. 2864—4-Inch

Pt. In.	Each	Steel In.	Pin Lgth. In.	Lgth. In.	Wt. Lb. Doz.	Pt. In.	Each	Steel In.	Pin Lgth. In.	Lgth. In.	Wt. Lb. Doz.
1/16	**$.42**	5/16	1/2	4	15/16	7/32	**$.42**	5/16	1	4	7/8
3/32	**.42**	5/16	11/16	4	7/8	1/4	**.52**	3/8	1	4	1 1/4
1/8	**.42**	5/16	3/4	4	7/8	5/16	**.58**	7/16	1	4	1 1/2
5/32	**.42**	5/16	13/16	4	15/16	3/8	**.64**	1/2	1	4	2 3/16
3/16	**.42**	5/16	15/16	4	7/8	...	....	..	.	.	...

No. 2866—6-Inch

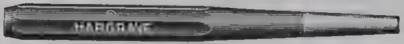
Point......in.	3/32	1/8	5/32	3/16	7/32	1/4
No. **2866**......each	**$.58**	**.58**	**.58**	**.58**	**.58**	**.58**
Steel......in.	3/8	3/8	3/8	3/8	3/8	3/8
Pin Length......in.	1 11/16	1 11/16	1 3/4	1 3/4	1 7/8	1 7/8
Length......in.	6	6	6	6	6	6
Weight per Doz...lb.	1 5/8	1 11/16	1 3/4	1 13/16	1 7/8	1 15/16

No. 2869—9-Inch

Point......in.	1/8	3/16	1/4	5/16	3/8
No. **2869**......each	**$.86**	**.86**	**.86**	**.86**	**.86**
Steel......in.	1/2	1/2	1/2	1/2	1/2
Pin Length......in.	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2
Length......in.	9	9	9	9	9
Weight per Doz....lb.	3 7/8	4	4 1/4	4 5/8	5

No. 630 Hargrave Drift Punches

Load Tested



Hand forged. Length, 10 in.

Packed 6 in a box.

Point......inches	3/16	1/4	5/16	3/8
No. **630**......each	**$.94**	**1.00**	**1.04**	**1.16**
Taper......inches	5 1/4	4 3/4	4 3/4	5
Diameter Steel......inches	5/8	5/8	5/8	3/4
Weight per Dozen.....pounds	8	8 1/2	9	13

No. 620 Hargrave Lining Up Punches

Load Tested

Hand-forged, with hardened and tempered point.

Pt. In.	Each	Steel In.	Lgth. In.	Taper In.	Wt. Lb. per Doz.	Pt. In.	Each	Steel In.	Lgth. In.	Taper In.	Wt. Lb. per Doz.
5/32	**$.86**	1/2	10	6 1/2	4 1/2	5/16	**$1.24**	3/4	12	8 1/2	13 1/2
3/16	**1.06**	5/8	12	8 1/2	8 1/2	1/4	**1.82**	3/4	18	9 1/2	21
1/4	**1.10**	5/8	12	8 1/2	10	1/2	**2.54**	7/8	18	12	26

No. 200 Hargrave Alloy Steel Cold Chisels

Load Tested

Made from a special analysis tool steel. Trip hammer forged. Carefully tempered, tested for hardness, toughness.

Width Blade......in.	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
No. **200**......ea.	**$.48**	**.50**	**.52**	**.62**	**.74**	**1.00**	**1.28**	**1.54**
Length......in.	5	5	5	6	6 1/2	7 1/2	8	8 1/2

No. 205 Hargrave Extra Long Cold Chisels

Load Tested

Made of alloy steel, power tested for proper hardness and toughness. Not widened at point. Lacquer finish. Packed in bulk.

Size, In. Width Blade	Size, In. Length	Each	Wt. Lb. per Doz.	Size, In. Width Blade	Size, In. Length	Each	Wt. Lb. per Doz.
1/2	10	**$.70**	7	1 1/4	18	**$4.42**	75
1/2	12	**.70**	9	3/4	24	**2.26**	36
5/8	12	**.98**	12	7/8	24	**2.96**	48
3/4	12	**1.14**	18	1	24	**4.00**	70
7/8	12	**1.64**	24	1 1/4	24	**6.00**	102
1	12	**2.00**	30	1 1/2	24	**8.16**	146
3/4	18	**1.58**	27	1 1/4	36	**8.00**	155
7/8	18	**2.30**	37	1 1/2	36	**13.34**	222
1	18	**2.76**	47	...	..	.....	...

No. 243 Hargrave Diamond Point Chisels

Individually Load-Tested

Made of alloy steel; well balanced.

Finished in blue lacquer with polished point.

Cutting Edge...in.	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8
Ea......	**$.60**	**.70**	**.80**	**.90**	**.94**	**1.16**	**1.24**	**1.56**	**2.00**
Length......in.	4 1/2	5	6 1/2	7	7 1/2	8	8	8 1/2	9
Diameter Steel..in.	5/16	3/8	1/2	5/8	5/8	3/4	3/4	7/8	1
Approx. Wt. Doz......lb.	1 5/16	1 7/8	3 13/16	5 1/2	6 7/8	10 7/8	11 3/4	15 3/8	24 3/4

No. 253 Hargrave Round Nose Chisels

Load Tested

Cut. Edge......in.	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8
Per Doz......	**$6.90**	**7.60**	**8.80**	**10.60**	**11.80**	**13.90**	**15.10**	**18.50**	**26.40**
Length......in.	4 1/2	5	6 1/2	7	7 1/2	8	8	8 1/2	9
Diam. Steel.....in.	5/16	3/8	1/2	5/8	5/8	3/4	3/4	7/8	1
Wt. Per Doz....lb.	1 5/16	1 7/8	3 13/16	5 1/2	6 7/8	10 7/8	11 3/4	15 3/8	24 3/4

No. 233 Hargrave Cape Keyseating Chisels

Load Tested

Hand forged from alloy steel. Blue lacquered body and polished blade.

Cut Edge.....in.	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8
No. **223**......ea.	**$.60**	**.70**	**.80**	**.90**	**.94**	**1.16**	**1.24**	**1.56**	**2.00**
Length......in.	4 1/2	5	6 1/2	7	7 1/2	8	8	8 1/2	9
Diam. Steel..in.	5/16	3/8	1/2	5/8	5/8	3/4	3/4	7/8	1
Wt., Doz.....lb.	1 5/16	1 7/8	3 13/16	5 1/2	6 7/8	10 7/8	11 3/4	15 3/8	24 3/4

No. 233 Hargrave Half Round Chisels

Load Tested

Cut Edge..in.	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8
No. **233**...ea.	**$.60**	**.70**	**.80**	**.90**	**.94**	**1.16**	**1.24**	**1.56**	**2.00**
Length.....in.	4 1/2	5	6 1/2	7	7 1/2	8	8	8 1/2	9
Diam. Steel. in.	5/16	3/8	1/2	5/8	5/8	3/4	3/4	7/8	1
Wt., Doz...lb.	1 5/16	1 7/8	3 13/16	5 1/2	6 7/8	10 7/8	11 3/4	15 3/8	24 3/4

Specify Starrett®
SATIN CHROME MICROMETERS

Pioneered and Developed by
The L. S. Starrett Company

No. 230
32NDS.
1 .0312
3 .0937
5 .1562
7 .2187
9 .2812
11 .3437
13 .4062
15 .4687
17 .5312
19 .5937
21 .6562
23 .7187
25 .7812
27 .8437
29 .9062
31 .9687
1-8.125
1-4.250
3-8.375
1-2.500
5-8.625
3-4.750
7-8.875
16THS.
1 .0625
3 .1875
5 .3125
7 .4375
9 .5625
11 .6875
13 .8125
15 .9375
THE L.S. STARRETT CO.
ATHOL, MASS. U.S.A.
MADE IN U.S.A.

"Satin Chrome"
Micrometer No. T230RL
Range 0-1" by .0001".
Also available reading by .001".

Often imitated, never equalled, Starrett Micrometers are the standard by which others are judged. Precision made throughout by Starrett precision methods based on 70 years of micrometer manufacturing know-how . . . *plus* 12 big features that insure better, faster measuring. Ask your distributor to show you Starrett Micrometers designed to simplify *your* precision measuring jobs. You'll agree, they're the finest micrometers ever to carry the Starrett name.

INSIST ON THESE BIG FEATURES

For Better, Faster, Precision Measuring

1 **TAPERED FRAME** — Permits measurements in narrow slots and tight places. Standard on all full finish outside micrometers.

2 **CONVENIENT DECIMAL EQUIVALENTS** — Of 8ths, 16ths, 32nds and 64ths on frame or thimble.

3 **HI-MICRO MIRROR FINISH** — On faces of anvils and spindles insures more accurate measurements. Also available with tungsten carbide faces for severe abrasive conditions.

4 **ONE PIECE SPINDLE** — For long, accurate life.

5 **QUICK READING FIGURES** — Every graduation numbered for positive identification.

6 **LOCK NUT** — Permits locking of spindle at any reading. Available at slight additional cost.

7 **SIMPLE SLEEVE ADJUSTMENT** — Maintains Starrett accuracy.

8 **SATIN CHROME FINISH** — On thimble and sleeve of all micrometers and on frame of all full finish micrometers.

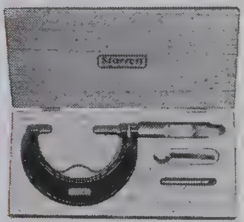
9 **NO GLARE** — Easy reading Satin Chrome Finish eliminates squinting and eye strain.

10 **RESISTS RUST** — Satin Chrome Finish highly resistant to stains and corrosion.

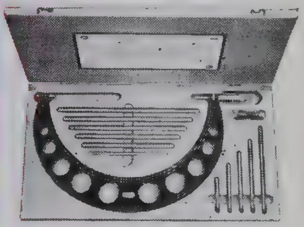
11 **HARDENED THREADS** — Ground from the solid and stabilized to insure lasting precision.

12 **RATCHET STOP OR THIMBLE FRICTION** — Permits consistent measurements independent of "feel" — Available at slight additional cost.

Tubular Micrometers No. 724 — Bow type. Light yet rigid for precision measurements on large work. Standard sizes up to 60". Larger sizes on special order. Bar types also available.

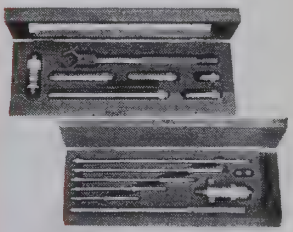


Black Frame Micrometers No. 436. Range 1" by thousandths in 24 sizes from 1 to 24 inches. Supplied singly or in sets. Also available with .0001" graduation.



Interchangeable Anvil Micrometers No. 224 — Ranges 0-4, 2-6, 6-9, 6-12, 9-12, 12-16, 16-20 and 20-24 by .001". Available singly or in sets. Interchangeable anvils mean big capacity plus saving in tool equipment.

Steel Mill Micrometers No. 205. For gaging hot metal. Heavy duty spindle, heavy cut graduations, wing head lock nut, "Satin Chrome" finish. Range 0-1".



"Satin Chrome" Inside Micrometers
No. 823 — with tubular rods.
No. 124 — with solid rods.

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FORT WAYNE, INDIANA

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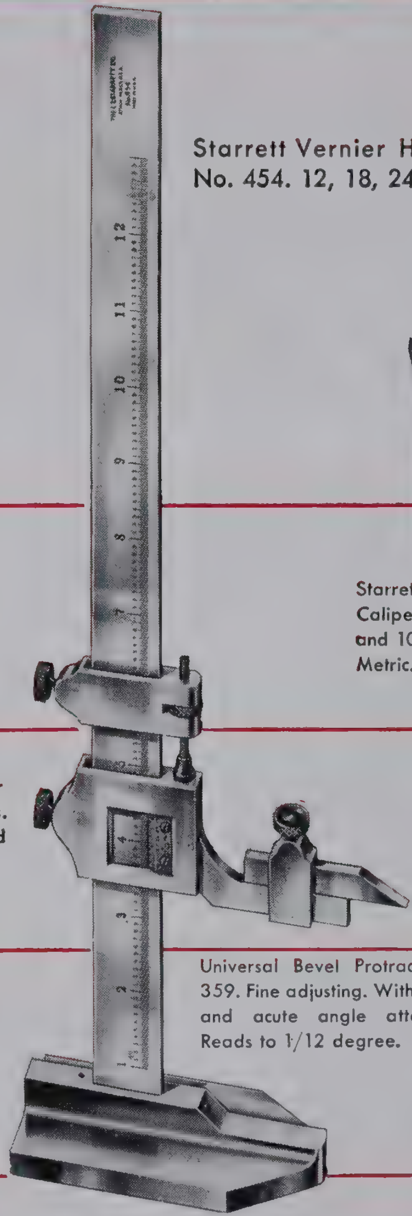
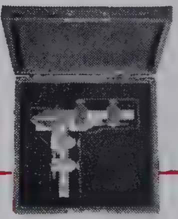
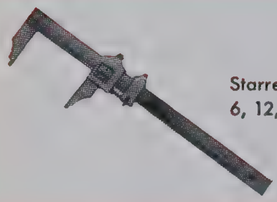


Starrett Vernier Height Gage No. 454. 12, 18, 24 inch sizes.

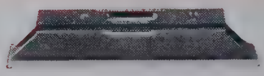


Starrett Gear Tooth Vernier Caliper No. 456. Two sizes: 20-2 and 10-1 diametral pitch. Also in Metric.

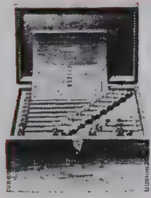


Starrett Vernier Caliper No. 122. 6, 12, 24, 36 and 48 inch sizes.

Steel Beam Trammel No. 251. For 18, 26, 36 and 72″ dia. circles. With needle, ball, pencil and caliper legs.



Master Precision Level No. 199. With 10-second graduated vial and auxiliary level. 15″ long.



Micrometer Caliper Sets No. 436. Sets of six or twelve micrometers covering the range 6-12 or 0-12 inches. In Finished Wood Case.

Universal Bevel Protractor No. 359. Fine adjusting. With Vernier and acute angle attachment. Reads to 1/12 degree.

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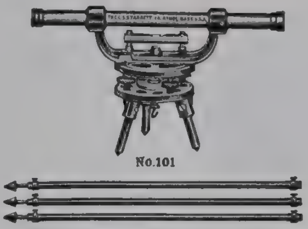
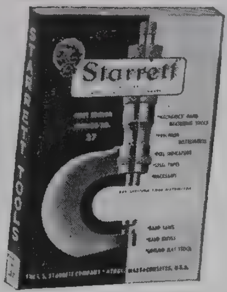
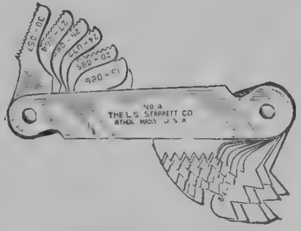
Starrett Tools



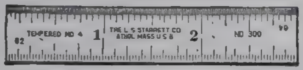
Leveling Instrument



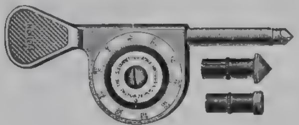
Starrett Catalog



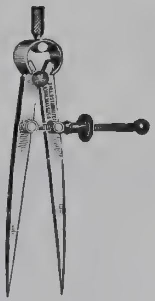
Screw Pitch Gage



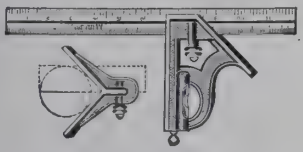
Steel Rule



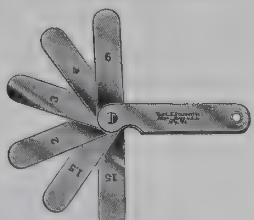
High Speed Indicator



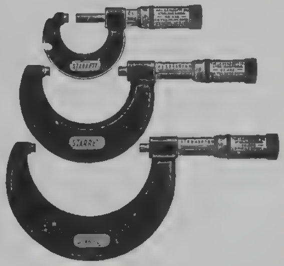
Spring Divider



Combination Square



Thickness Gage



Micrometer Caliper Set

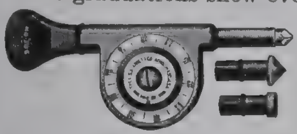
The greatest insurance for accurate work is skilled workmen and dependable tools. For over 70 years skilled workmen have placed complete confidence in Starrett tools. We sell them. Send for complete Starrett catalog of tools, hack saws and steel tapes.

We Show Only a Part of the **STARRETT TOOLS** That We Distribute

Starrett
STARRETT TOOLS

Ask for Your Catalog

No. 106 Starrett Speed Indicators



The graduations show every revolution, and two rows of figures read right and left as the shaft may run. Has rubber handle, making a safe insulator when used on electrical machinery. Nickel plated. Packed 1 in a box.

No. **106**, without Case........................each	**$3.90**
No. **106**, with Case...........................each	**6.15**

No. S162 Starrett Pin Vises

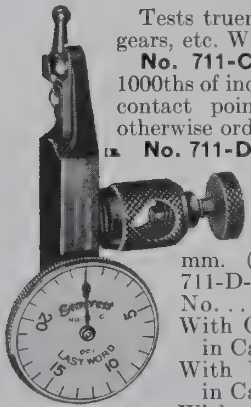
Hole extends full length of handle. Nickel-plated. Made of carbon steel.

No.........	162A	162B	162C	162D
Each.......	**$1.00**	**1.15**	**1.30**	**1.45**
Cap......in.	.0 to .040	.030 to .062	.050 to .125	.115 to .187

No. **S162**, Complete Set, 1 of Each Size; Weight, 3 Ounces..........................per set	**$4.90**
Case, Extra..each	**.60**

Series 711 Starrett Last Word Test Indicators

Adjustable Dial



No. 711-C

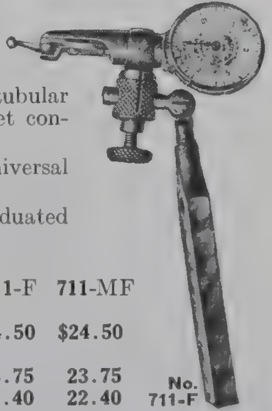
Tests trueness of lathe centers, arbors, cutters, gears, etc. With case unless otherwise ordered.

No. 711-C. Range, .037 inch. Measures by 1000ths of inch. Hard chrome-plated friction joint contact point. With gooseneck shank unless otherwise ordered.

No. 711-D-10. Range, .024 inch. Measures by 10,000ths of inch. Hard chrome-plated contact point. Gooseneck shank unless otherwise ordered. No. 711-M-D-10 measures by .002 mm. (1/500 mm.); same price as No. 711-D-10.

No....................	711-C	711-D-10
With Gooseneck Shank, in Case..........each	**$20.90**	**$52.00**
With Universal Shank, in Case..........each	**21.65**	**52.75**
Without Shank, in Case.............each	**19.55**	**50.65**

Range, .030 Inch
Dial Reading, 0—15—0
Dial Graduated .001 Inch



No. 711-F

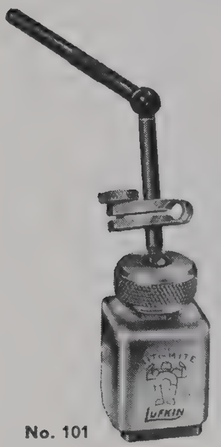
Reversible action. Swiveling tubular body. Hard chrome plated ratchet contact point.

No. 711-F. Furnished with universal shank unless otherwise specified.

No. 711-MF. Metric type, graduated .01 mm. (1/100 mm.).

No........................	711-F	711-MF
With Universal Shank, in Case ....each	**$24.50**	**$24.50**
With Gooseneck Shank, in Case..................each	**23.75**	**23.75**
Without Shank, in Case..each	**22.40**	**22.40**

Lufkin Miti-Mite Magnetic Base Holders



No. 101

Mounts test indicators to flat or curved, iron or steel surfaces instantly, without the use of clamps. Holds almost all dial indicators. Ideal on lathes, shapers, mills and planers. Permanent magnet has 50 pound pull.

Accurate adjustments with sensitive friction joint.

Swivel action post quickly and firmly secured in position with knurled locknut.

No.	Description	Each
100	Magnetic Base Holder for Test Indicator Complete with 7/32 and 5/16-Inch. Diam. Posts, Extension Rod and Adapter to Take 5/32-Inch Stud Type Indicator. Base, 1x1 1/8 Inches...	**$8.00**
101	Same as No. 100, but with Extra Fine Adjustment for Setting Dial Indicators............	**9.50**
110	Versatile Swivel Adaptor.....................	**1.75**
120	Magnetic Base Indicator Holder Combined with No. 125 4-Power Double-Lens Non-Distortion Magnifier...........................	**12.50**
125	Four-Power Magnifier Only for use with No. 100 Base..................................	**4.50**

No. 150 Lufkin Miti-Mite Heavy Duty Magnetic Base Holder

Has complete accessories to hold indicator up to 3 inches in diameter securely in position of flat or round surfaces.

Has positive positioning with ball and socket swivel bracket. Fingertip release for repositioning or removing without jarring indicator. Post can be locked at desired angle.

Permanent magnet has 100-pound pull.

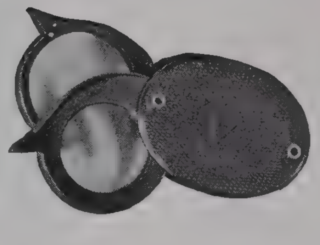
Base is non-breakable molded plastic. Width, 1 1/4 inches; length, 4 inches; height, 1 5/8 inches.

When used as a surface gage mount on Shoe No. 155, which allows use on iron or steel surface plates and on glass or marble.

Packed in individual wood box.

No. **150**, Holder with Attachments............each **$15.50**
No. **155**, Shoe..................................each **2.50**

Bausch & Lomb Folding Pocket Magnifiers



Available with one, two or three lenses in plastic mountings. Two-lens style gives a choice of three magnifications and three-lens style gives seven magnifications.

Extremely durable, light in weight, and of neat appearance.

No..................	**81–23–35**	**81–23–80**	**81–23–99**
Each................	**$2.00**	**2.75**	**3.75**
Power...............	3.5X	4X,5X,8X	5X to 20X
Lens Diameter.. mm.	30	20, 25	12, 15, 18

No. 81-34-61 Bausch & Lomb Utility Magnifiers

For desk or shop use. Used for the inspection of precision parts.

Achromatic objective is finely corrected, affording a wide, flat, sharply defined field of view.

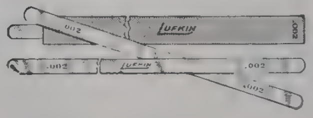
It has a spaced triplet lens system. Mount is threaded for focusing and screws in the black wrinkle lacquered horseshoe base.

Power, 4 1/2X. Lens diameter, 35 mm.

No. **81–34–61**.........each **$16.50**

No. 10 Lufkin Universal Feeler Stock
In 1-Foot Pieces

Used in determining clearance of tappets, fitting pistons, adjusting spark gap, ring groove clearance, gear play, etc.



Also employed by toolmakers and machinists, and in experimental work.

Stock is 1/2 inch wide. Both ends rounded and marked with its thickness.

Twelve 1-foot pieces of one-thickness in a box, each piece in an individual envelope.

Thick. In.	Per Foot	Thick. In.	Per Foot	Thick. In.	Per Foot	Thick. In.	Per Foot
.001	**$.92**	**.006**	**$.40**	**.013**	**$.34**	**.020**	**$.34**
.0015	**.46**	**.007**	**.34**	**.014**	**.34**	**.021**	**.34**
.002	**.46**	**.008**	**.34**	**.015**	**.34**	**.022**	**.34**
.0025	**.46**	**.009**	**.34**	**.016**	**.34**	**.023**	**.34**
.003	**.46**	**.010**	**.34**	**.017**	**.34**	**.024**	**.34**
.004	**.40**	**.011**	**.34**	**.018**	**.34**	**.025**	**.34**
.005	**.40**	**.012**	**.34**	**.019**	**.34**	....	...

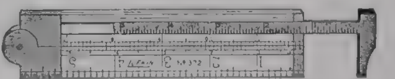
No. 10 Assortments

Consists of 9 boxes of twelve 1-foot pieces for box, one box each of the following thicknesses: .0015, .002, .003, .004, .006, .008, .010, .012 and .015 inch.

No. **10**...........................per assortment **$42.50**

Lufkin Boxwood Caliper Rules

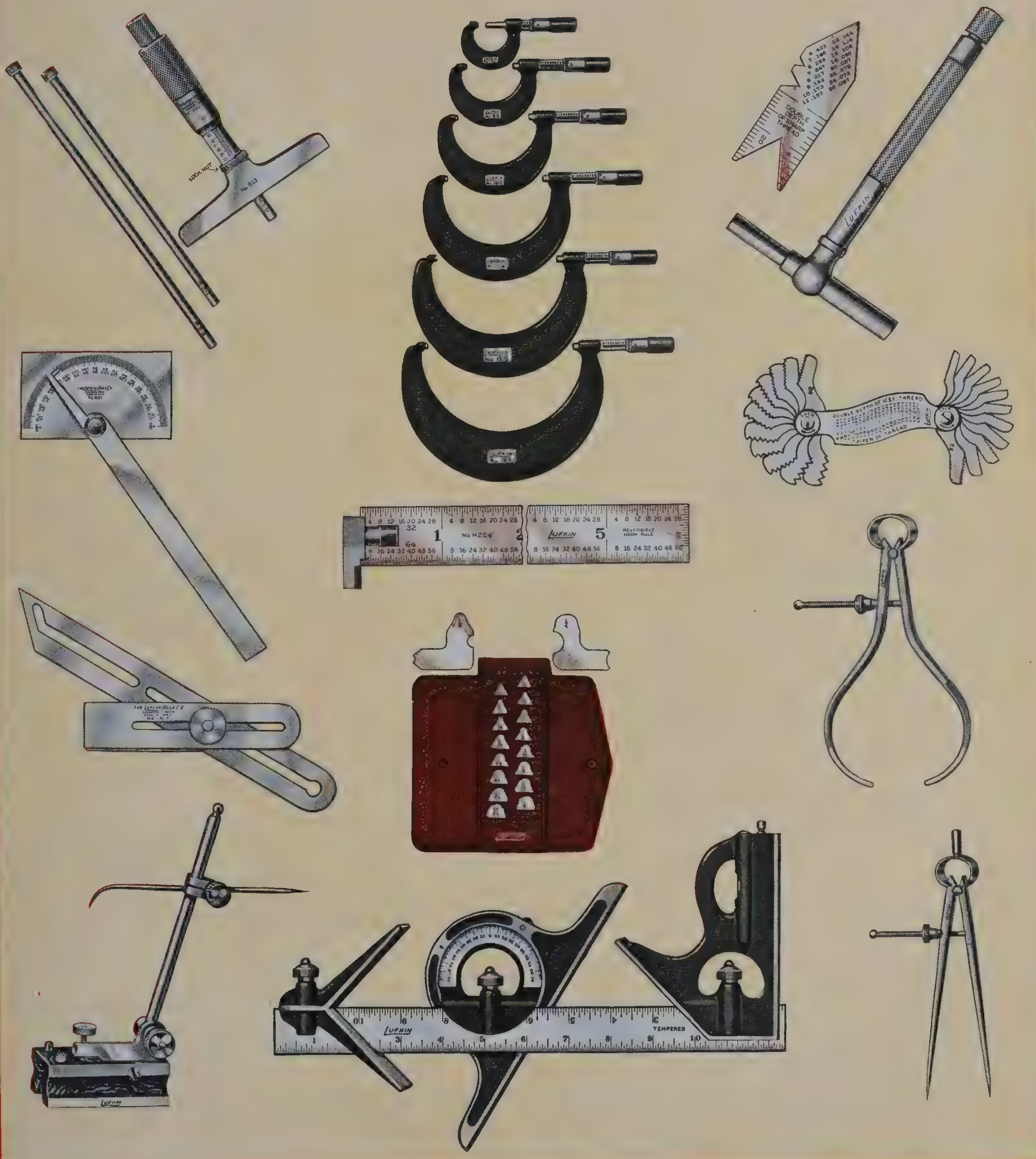
A sturdy rule, 1 3/8 inches wide. One foot, two fold. Unbound. Square joint. Brass bit plate. Graduated in 8ths, 10ths, 12ths, and 16ths; caliper, 16ths and 32nds. Packed 6 in box. Weight per dozen, 1 3/4 pounds.



No. **372**, (36 1/2L) Caliper Graduated Right to Left.ea. **$2.40**
No. **372R**, (36 1/2R) Caliper Graduated Left to Right.ea. **2.40**

LUFKIN

Precision Tools

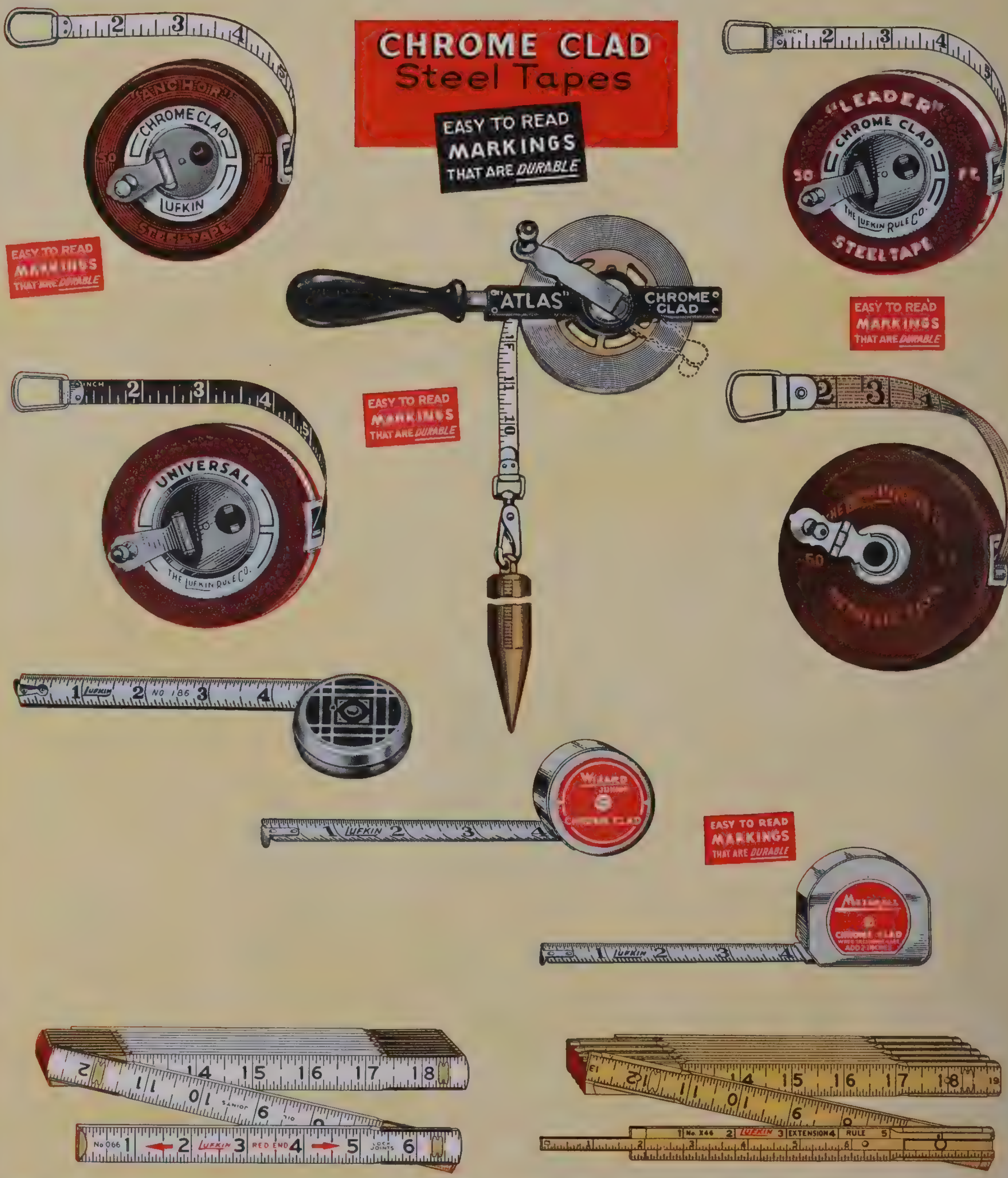

LOCK NUT
No 613
DOUBLE DEPTH OF SHARP THREAD
LUFKIN
DOUBLE DEPTH OF U.S. THREAD
PITCH OF THREAD
No H224
LUFKIN
REVERSIBLE HOOK RULE
THE LUFKIN RULE CO
LUFKIN
TEMPERED
LUFKIN

LUFKIN

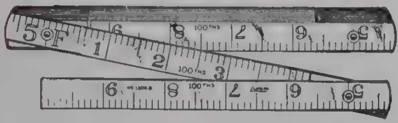
Measuring Tapes and Rules

CHROME CLAD
Steel Tapes

EASY TO READ
MARKINGS
THAT ARE DURABLE


"ANCHOR"
CHROME CLAD
50 FT
LUFKIN
STEEL TAPE
EASY TO READ MARKINGS THAT ARE DURABLE
"LEADER"
CHROME CLAD
50 FT
THE LUFKIN RULE CO.
STEEL TAPE
EASY TO READ MARKINGS THAT ARE DURABLE
"ATLAS"
CHROME CLAD
EASY TO READ MARKINGS THAT ARE DURABLE
UNIVERSAL
THE LUFKIN RULE CO.
50
LUFKIN
NO 186
WIZARD
CHROME CLAD
EASY TO READ MARKINGS THAT ARE DURABLE
MEZURALL
CHROME CLAD
No 066
LUFKIN
RED END
LOCK JOINTS
No. X46
LUFKIN
EXTENSION
RULE

No. 1306D Lufkin Aluminum Rules



For civil engineers, surveyors, tile layers, highway builders and others.

Marked feet, 10ths and 100ths of feet, one side; feet, inches and 16ths, other side. Graduations begin at same end on both sides. Can also be furnished marked consecutive inches to 16ths, both sides.

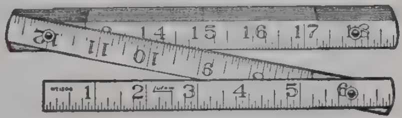
The aluminum rule occupies a position between folding wood and steel rules both as regards weight and durability. Especially popular where folding wood rules are often broken.

It is light and accurate, and being of a special hardness, is durable and practically unbreakable and holds its shape well. Surface of rule is in natural color with sunken graduations and figures in black showing up distinctly.

Packed 3 in a box. Weight, 5 pounds per dozen.

No. **1306D**, 6-foot, 12-fold.... ....each **$3.20**

Lufkin Aluminum Rules

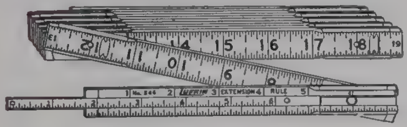


Rustproof; of aluminum, with brass, rivet type, spring joints. Surface is natural color; sunken graduations; black figures. Marked in consecutive inches in 16ths, both sides. Has 6-inch folds. Width, 9/16 inch. Packed 3 in a box.

No.	1204	1206	*1206F
Each	$2.40	2.90	2.90
Length.........feet	4	6	6
Weight per Dozen.........pounds	3¼	5	5

*Inside or flat markings (numbering commencing on inside face.)

Lufkin Folding Extension Rules



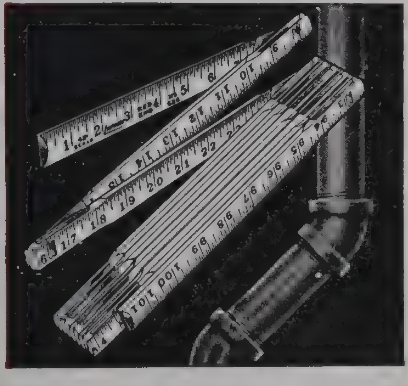
A 6-foot rule with 6-inch brass extension slide.

Width, 5/8 in.

Marked inches to 16ths.

No. **X-46**, without Hook . . . . .each **$2.50**
No. **HX-46**, with Hook . . . . .each **2.65**

No. 626 Lufkin Plumbers' and Steamfitters' Red End Rules



Specially marked for pipefitting work. Also suitable for general measuring.

Bears standard measurements in black. Corresponding 45° lengths in red.

Has solid brass strike plates and joints, rustproof, smooth working. Lock joints reduce end play, maintain accuracy.

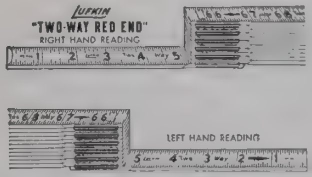
Sections are of hardwood, straight grain, tough, flexible.

Snow-white enamel finish protected by a tough clear plastic coat. Ends in bright, gloss red.

Packed 6 in a box. Weight per dozen, 3½ pounds.

No. **626**, 6-Foot Rule..........................each **$1.90**

No. 966 Lufkin 2-Way Red End Rules



The 2-way is adapted to measuring left to right and right to left. With it, when measuring distances longer than the rule, the balance of the space, completing the measurement, is found by simply turning over the rule, and still all figures are right side up. This 2-way feature also makes it convenient for measuring right and left out of corners.

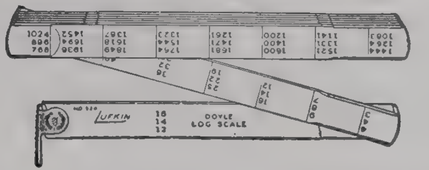
Brass trimmings, strike plates prevent wear, white enamel finish protected by a tough clear plastic coat, and bright red ends. Marked consecutive inches to 16ths on both edges of both sides; has 6-inch folds; is 5/8 inches wide and 6 feet long.

Packed 6 in a box.

Weight per dozen, 3½ pounds.

No. **966**..each **$1.60**

No. 524 Lufkin Spring Joint Log Rules

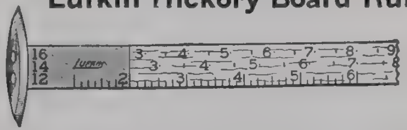


For use by traveling scalers or loggers having a limited amount of scaling to do. Light and compact, and fits in pocket when folded. Folding end hook serves as a log rule head, and is handy in all measuring.

Rule is of hardwood, 5/8 inch wide, 4 feet long, folding to a 6-inch length. White enameled, and trimmings are brass plated. Joints are concealed. Doyle log scale only. Measures diameters up to 48 inches. Marked for 10, 12, 14, 16, and 18-foot logs, and one row inches to 16ths. Packed ½ dozen in a box. Weight per dozen, 2 pounds.

No. **524**.......................................each **$1.40**

Lufkin Hickory Board Rules



Adopted as standard by the National Hardwood Lumber Association. The half feet are indicated by vertical dashes, the feet by dots. All have 6-inch wedge handles, 3 tiers, heavy brazed head, steel cap, 2-inch brass shoulders, and are marked 8/18, i.e., 1 side to measure 8, 10, 18, and the other side 12, 14 and 16 feet.

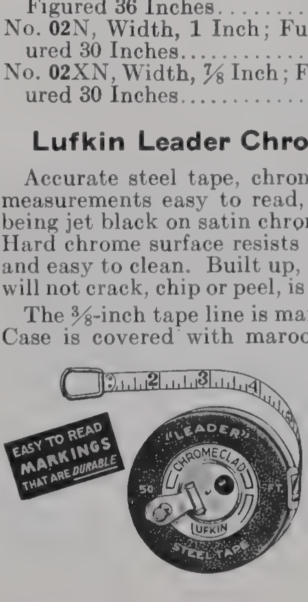
Weight per dozen, 6 pounds.

No. **01N**, Width, 1 Inch; Full Length, 3½ Feet, Figured 36 Inches..........................each	**$10.40**
No. **02N**, Width, 1 Inch; Full Length, 3 Feet, Figured 30 Inches..............................each	**10.00**
No. **02XN**, Width, 7/8 Inch; Full Length, 3 Feet, Figured 30 Inches..............................each	**10.00**

Lufkin Leader Chrome Clad Steel Tapes

Accurate steel tape, chrome plated. Markings durable; measurements easy to read, even in poor light, markings being jet black on satin chrome-white surface, free of glare. Hard chrome surface resists both rust and wear, is smooth and easy to clean. Built up, of metal throughout, this tape will not crack, chip or peel, is extra strong.

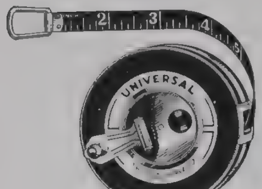
The 3/8-inch tape line is marked in feet, inches and eights. Case is covered with maroon-colored vinyl, metal lined; winding handle opened by push pin.


EASY TO READ MARKINGS THAT ARE DURABLE
"LEADER"
CHROMECLAD
LUFKIN
STEEL TAPE

Packed 1 in a box.

No.	Each	Lgth. Ft.	Wt. Lb.
C250	**$6.10**	25	¾
C253	**7.50**	50	1 1/16
C254	**9.30**	66	1 5/16
C255	**10.20**	75	1 7/16
C256	**12.60**	100	1 13/16

Lufkin Universal Steel Tapes



The steel line is of standard weight, ⅜ inch wide, clearly marked and has instantaneous readings and Nubian finish.

The case has flat, flush, nickel-plated edge band $\frac{5}{16}$-in. wide. Case is metal-lined, covered with maroon vinyl. Folding flush handle is opened by pressing pin on opposite side. All trimmings are nickel-plated.

Tape marked feet, inches and 8ths, one side only.

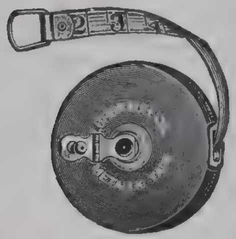
Packed 1 in a box.

No.	540	543	545	546
Each	**$5.30**	**6.50**	**8.50**	**10.60**
Length ... feet	25	50	75	100
Weight ... ounces	6	10	15	17

Lufkin Metallic Tapes

Linen, ⅝ inch, with metallic warp. Case is made of genuine leather with nickel-plated trimmings.

Nos. 500 to 506 marked in feet and inches and half inches; Nos. 500D to 506D marked in feet and 10ths and half 10ths, on one side only.



Packed 1 in a box.

No.	Each	Lgth Feet
500 & 500D	$7.70	25
503 & 503D	10.90	50
505 & 505D	14.00	75
506 & 506D	17.20	100

Lufkin Wizard Tape-Rules

Flexible—Rigid

Rule blade is of high quality tempered steel, stiffened by special forming. Blade has nickel-plated surface with dark figures and lines in sharp contrast. It is manually withdrawn and returned. Nickel-plated case.

Zero falls at inside of hook. Accurate butt end measurements can be taken from shoulders of blade. Marked in consecutive inches to 16ths both edges; first 6 inches, upper edge to 32nds. No. 686D marked in feet, 10ths and 100ths of feet upper edge, feet, inches and 16ths on lower edge.

Packed 1 in a box, 6 in a carton.

No. **686**, 72-Inch, ⅝-Inch Wide	each	**$1.35**
No. **688**, 96-Inch, ⅝-Inch Wide	each	**1.80**
No. **686-D**, 6-Foot, ⅝-Inch Wide	each	**1.70**
No. **6810**, 120-Inch, ⅝-Inch Wide	each	**3.60**

Lufkin Wizard Junior Tape-Rules

WIZARD
LUFKIN

Rule blade is of high quality tempered steel, ½-inch wide and nickel plated. Has dark lines and figures. Blade is manually operated and runs smoothly into and out of case. Is held in case by a stop catch, guarding against breakage when not in use. Self-adjusting end hooks afford accurate butt-end and hooked-over measurements.

Sturdy heavily plated case with flush inset side plate in blue and white. Blade marked on one side, both edges, in inches to 16ths and first six inches upper edge to 32nds.

Packed 1 in a box; 6 in a carton.

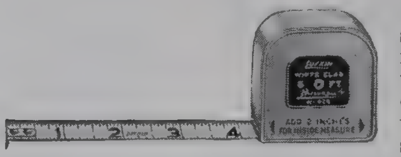
Weight per carton of 6, 1¼ pounds.

No. **1686**, Six Foot	each	**$1.10**
No. **1688**, Eight Foot	each	**1.35**

Replaceable Blades

No. **RN6**, for No. 1686	each	**$.70**
No. **RN8**, for No. 1688	each	**.80**

Lufkin Mezurall White-Clad Tape Rules



For inside and outside height and depth, flexible and rigid measurements. Steel concave blade, ½-inch width, projects unsupported.

Bold black figures against snow-white background.

Lightweight alloy metal case, 2 inches wide for accurate inside measurements. Self-adjusting end hook automatically slides to compensate for its thickness.

Blade marked on side, both edges, to 16ths. First six inches, upper edge to 32nds.

Packed 1 in a box, 6 in a carton. Weight, (6-foot) 3 ounces.

No.	W926	W928	W9210	W9212
Each	**$.98**	**1.19**	**1.49**	**1.89**
Length ... feet	6	8	10	12
Replacement Blade No.	RW6	RW8	RW10	RW12
Replacement Blade ... each	**$.45**	**.60**	**.75**	**.90**

LUFKIN

LUFKIN
PRECISION TOOLS
STANDARD OF ACCURACY
CATALOG NO. 8
THE LUFKIN RULE CO. SAGINAW, MICH. U.S.A.

We are prepared to fill your orders for LUFKIN TOOLS from a carefully selected stock.

In addition to the Lufkin Tools illustrated in this general catalog, we offer the entire line, and will gladly furnish the latest LUFKIN CATALOG, upon request.

Phone or write for your copy

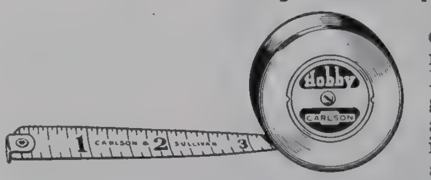
Master Flexible Steel Tape Rules

Case made of chrome-plated steel. Detachable blade is of high quality tempered steel; permanently etched figures. Graduated on both sides. Inside measurement is read direct at point where tape disappears into case. Precision lock is cam lever type, welded to side of case. Packed 6 in a box.

No.	*406	408
Each	**$2.50**	**2.75**
Length ... feet	6	8
Width ... inches	½	½
Weight ... ounces	3¾	4½

*With layout measurements.

Carlson Hobby Steel Tape Rules

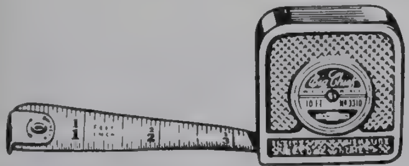


Has ½-inch etched blade, chromium plated case. Nos. 126 and 128 graduated in 16th and 32nds of an inch; Nos. 126-TE and 128TE in 10ths—100ths and English on same side. No. 21P measures diameters up to 21 inches; graduated in standard 16ths. Features quick change tape connection without opening case. Swing tip permits butt end accuracy and easel edge marking.

Packed individually.

No.	126	126TE	128	128TE	21P
Each	**$1.20**	**1.50**	**1.50**	**1.80**	**1.50**
Length ... feet	6	6	8	8	6
Weight ... ounces	2½	2½	3	3	2½
Replacement Blade No.	6R	6TE	8R	8TE	1P
Replacement Blade .. ea.	**$.65**	**.75**	**.75**	**.90**	**.75**

Carlson Big Chief Tape Rules

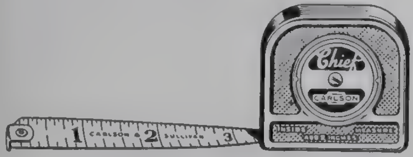


Has extra stiff ¾-in. wide white blade with jet black numerals. Case is 2-in. long in luster finish. Graduated continuously in 16ths. Foot markings every 12 inches. Stud markings every 16 in. The 10-foot blade will extend its full length vertically without buckling. Features quick change tape connection and swing tip. Automatic braking.

Packed 6 in a box.

No.	3310	3312
Each	$3.25	3.50
Length, feet	10	12
Weight per Dozen, pounds	3¾	4¼
Replacement Blade No.	10X	12X
Replacement Blade, each	$1.50	1.70

Carlson Chief Steel Tape Rules



Used by mechanics for inside and outside measurements. Has ½-inch etched blade graduated, one side, to 16ths; both edges with 32nds on lower edge for first 6 inches. For inside measure, add 2 inches.

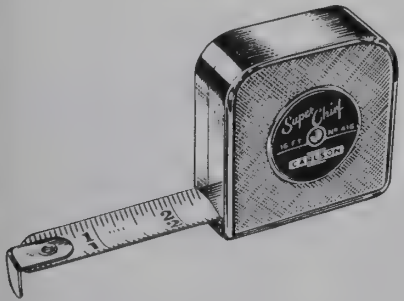
Swing tip permits inside and butt end accuracy. Replace worn or accidentally broken blades without opening case. Non-friction wind. Automatic braking action prevents creeping of blade, even when fully extended. Durable die cast zinc alloy rustproof case, chromium plated.

Packed individually.

No.	226	228	2210
Each	$1.35	1.65	2.10
Length, feet	6	8	10
Weight, oz.	3¼	3¾	4
Replacement Blade No.	6R	8R	10R
Replacement Blade, each	$.65	.75	1.10

No. 416 Carlson Super Chief Steel Tape Rules

¾-Inch Blade—16 Feet Long



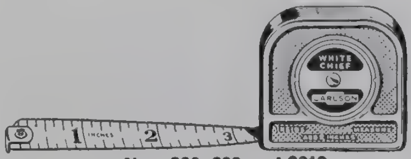
Designed into pocket-size case, 2½ inches. Handy crank rewinds blade. Blade moves smoothly in and out of case, no backlash. Swing tip for inside and butt-end measurements. Easy-to-read jet black markings on acid-resistant, crack-proof, white blade surface.

No. 416, Weight, 6¾ Ounces	each	$4.00
No. 16W, Replacement Blade; Wt., 3½ Oz.	each	2.00

MATERIAL NOT LISTED

We can furnish many items
not listed in this catalog.
Please send us all your inquiries.

Carlson White Chief Steel Tape Rules



Nos. 326, 328 and 3210

Die cast, chromium plated case with flat bottom exactly 2-inches long. Has ½-inch white blade surface, bonderized to produce acid and rust resistant background for jet black markings. Foot markings every 12 inches. Nos. 326, 328 and 3210 have first 6 inches of blade graduated in 16ths and 32nds. No. 3210RH right-hand rule similarly graduated. Nos. 328TE and 3210TE engineer's model graduated in 10ths and 100ths on the lower edge of the blade, upper edge is standard inch rule graduated in 16ths. Features quick change tape connection without opening case. Swing tip allows accurate inside, outside and butt-end measurements. Automatic braking action prevents creeping of blade. Packed 6 in a box.

No.	326	328	3210	3210RH	328TE	3210TE
Each	$1.80	2.10	2.30	2.30	2.25	2.45
Length, ft.	6	8	10	10	8	10
Wt. per Doz., lb.	2¾	3	3½	3½	3	3½
Replacement Blade:						
No.	6W	8W	10W	10WRH	8WTE	10WTE
Each	$.95	1.10	1.25	1.25	1.10	1.25

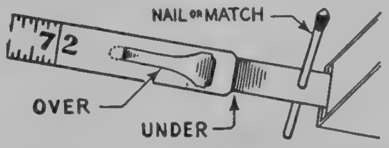
Carlson Steel Tape Replacement Blades

Etched Blade

Packed 6 in a box with complete instructions:

INSTRUCTIONS

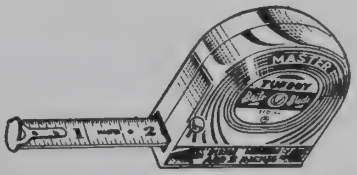
1. FIRST place nail or match in hole to HOLD narrow inner tape while making the change.



2. Disconnect old blade and insert new blade exactly as shown.

No.	6R	8R	10R	6W	8W	10W	10X	12X	16W
Each	$.65	.75	1.10	.95	1.10	1.25	1.50	1.75	2.00
Blade, ft.	6	8	10	6	8	10	10	12	16

Master Brite-Blade Tufboy Tape Rules



Graduated both edges, both sides in 16th's. First 6 inches graduated in 32nds. Blade finished in white baked enamel. For inside measurement add two inches for width of case.

Replaceable blade has 2-way sliding tip which moves in or out when making butt or outside measurements. Wedge brake on side of case holds all measurements without danger of creep.

Unbreakable zinc alloy case, chrome plated, 2 in. wide. Width of blade, ½ inch.

No.	*306L	306WL	*308L	308WL	*310L	310WL
Each	$1.70	1.85	1.85	2.10	2.10	2.35
Length, feet	6	6	8	8	10	10
Wt. per Doz., lb.	3³⁄₁₆	3³⁄₁₆	3⁹⁄₁₆	3⁹⁄₁₆	4	4
Replacement Blades						
No.	*R1A	R2A	*R3A	R4A	*R13A	R5A
Each	$.80	1.10	.90	1.20	1.05	1.35
For Rule No.	306L	306WL	308L	308WL	310L	310WL

*Plain steel blades.

No. 520 Kennedy Machinists' Cases

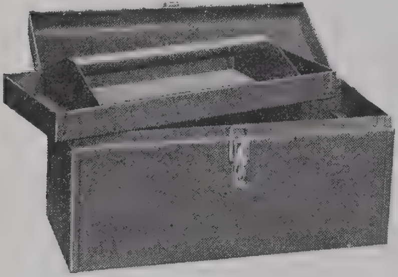
Neither heat nor moisture will affect case. Drawers slide easily on super-compound drawer slides that stop only after they are extended out of the case giving a clear view of the contents. Drawers are completely lined with felt.

Case is strongly reinforced with boxed ends. Front panel, which slides under drawers when box is open, fits against drawers locking them with 60-change lid lock. Rust resisting fittings with seal brown ripple baked enamel finish. An adjustable partition is placed in each drawer except bottom one. Additional partitions may be purchased.

Packed 1 to a crate.

No. **520**	each	**$29.95**
Outside Dimensions: Length	inches	20
Width	inches	8½
Height	inches	13
Inside Dimensions: Till in Top	inches	3¾x8⅜x20
4 Drawers	inches	1x7½x8⅝
1 Drawer	inches	1½x7½x18¼
1 Drawer	inches	2x7½x8⅝
1 Drawer	inches	2½x7½x18¼
Net Weight	pounds	27¾
Shipping Weight	pounds	35

No. K-20 Kennedy Tool Kits



An all-purpose tool kit with divided carrying tray. Tray is 19⅜x7⅞x1¾ inches, and has three separate compartments, one, 13⅞x7⅞ inches; two 2¾x7⅞ inches. Kit is 20x8½x9½ inches high.

Piano type hinge extends length of lid. Kit is locked by hasp and staple. Made of 20 and 22 gage steel, dark green ripple baked enamel finish. Packed 4 to a carton. Shipping weight, 58 pounds.

No. **K-20**....................each **$8.00**

Kennedy Bighorn Steel Tool Kits

Tray is automatically lifted out with opening of the lid and it rests firmly when extended.

Has draw bolt hasp and staple.

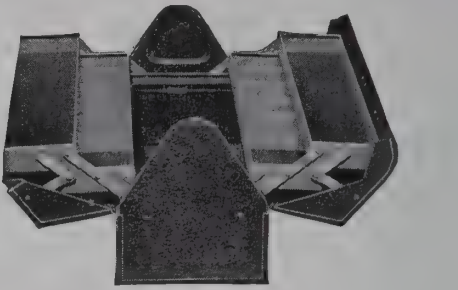
Double seamed ends, corner irons and full length hinge.

Mar-proof green baked ripple enamel finish.

Packed 6 to a carton.

No.		CS16	CS19
Each		**$5.70**	**5.95**
Dimensions	inches	16x7x7	19x7x7
Weight per Carton	pounds	43	48

Kennedy All Steel General Mechanics' Kits



The four trays swing out of kit when lids are opened. Steal handle; fastened with draw bolt hasp and staple. Three skid rails welded to bottom. Seal brown ripple baked enamel finish outside, dark green smooth baked enamel trays.

Packed in individual cartons.

No.		*1017	1018
Each		**$13.50**	**15.75**
Dimensions	inches	17x8x10	18x10x12½
Shipping Weight	pounds	58	20

*Packed 4 to a carton.

Style 41 Gerstner Tool Cases

High-grade materials and serviceable black imitation seal grain leather make this a strong, roomy and handsome case. Drawer fronts are quartered oak, trimmings nickeled, top till and drawers felt lined, mirror in top lid. Self-hinging front lid swings up and locks automatically. Also finished in quartered oak.

Leatherette Covered Style	**Quartered Oak** Style	Each	Outside Dimensions Inches	—Length, Inches— Short Drawers	Long Drawers	Depth Drawers Inches
41	**041**	**$29.00**	16x12¼x8½	6⅝	14¼	6¼
41A	**041A**	**30.00**	18x12¼x8½	7⅝	16¼	6¼
41B	**041B**	**31.00**	20x12¼x8½	8⅝	18¼	6¼
41C	**041C**	**33.00**	20x12¼x9½	8⅝	18¼	7¼

Gerstner Tool Chests

This model has an upright center drawer for drill block or hand book. Seven short and three long drawers, all felt lined.

Has milled key lock, and is fitted with patented locking device for self-hinging front lid.

Top compartment is 19 and 25 by 3¼ by 8¼ inches.

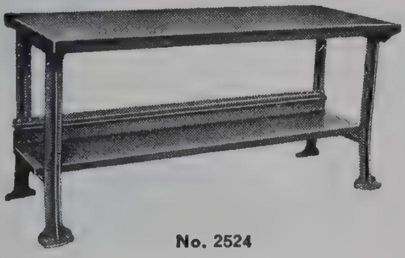
Black art leather covering or fine quartered oak finish.

Nickel-plated trimmings.

No., Leatherette Covered		**42**	**52**
No., Quartered Oak		**042**	**052**
Each		**$41.00**	**48.00**
Outside Dimensions	inches	20x15¾x9½	26x15¾x9½
Length Short Drawers	inches	7⅛	10⅛
Length Long Drawers	inches	18¼	24¼
Depth Drawers	inches	7¼	7¼

Lyon Steel Work Benches

With Steel Tops



No. 2524

Lyon steel top for every type of heavy duty bench work.

Steel top benches have long life on heavy jobs.

Tops will not crack, splinter, gouge or become oil soaked.

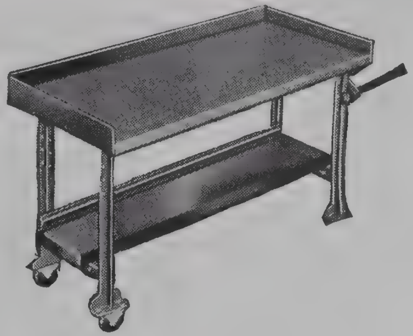
Legs are attached to top through wood blocks that insulate against noise and vibration. Bench is easily cleaned.

Accessory equipment includes ¾ depth shelf, back and end stops, single drawers, 2 and 3 drawer units, shelf riser.

Green baked-on enamel finish.

All benches are 34 inches high.

Portable Work Benches



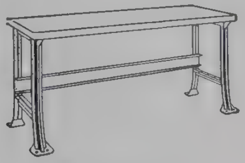
Used by maintenance men, millwrights, mechanics, and supervisors of mobile assembly and production lines. All the features of Lyon steel top work benches are contained in portable benches and all standard accessories may be used.

Bench casters are stationary type and are securely attached to insure continued rigidity. Wheelbarrow type handles slide under bench top and out of the way when not in use. Green baked-on enamel finish.

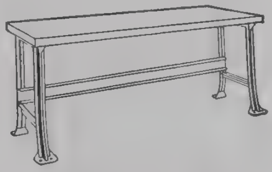
Length, 72 in.; depth, 28 in. Weight, 185 pounds.

No. **2560**, as Illustrated........................each **$52.25**

With Stringers



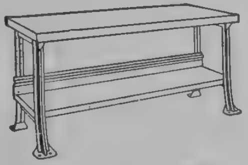
Nos. 2502 and 2503



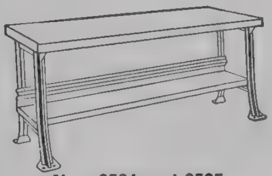
Nos. 2504 and 2505

No.	2502	2503	2504	2505
Each	**$27.05**	**29.75**	**29.15**	**32.35**
Length...inches	60	60	72	72
Depth...inches	28	34	28	34
Weight...pounds	125.0	143.0	141.0	161.0

With Shelves



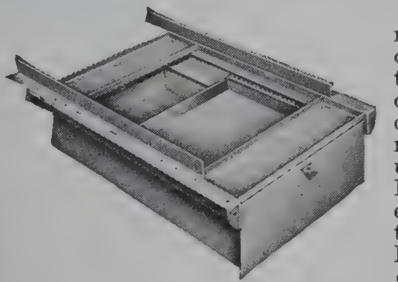
Nos. 2522 and 2523



Nos. 2524 and 2525

No.	2522	2523	2524	2525
Each	**$31.20**	**33.95**	**33.60**	**36.60**
Length...inches	60	60	72	72
Depth...inches	28	34	28	34
Weight...pounds	144.0	170.0	165.0	190.0

Lyon Bench Drawers



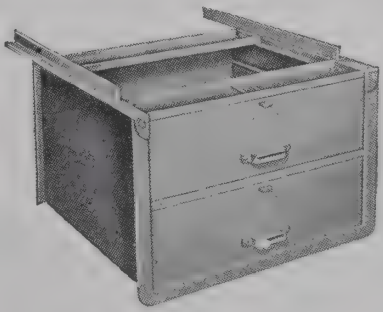
Lyon bench drawers may be used with steel or wood top benches, tool stands, shop desks, tables, or under counters. Adjustment angles permit use on any size bench. Roller bearings assure easy drawer operation. Automatic stops. Equipped with sliding drawer tray.

Padlock attachment. (Padlock not furnished.)

Green baked-on enamel finish.

No.	2775	2776	2777
Each	**$9.25**	**9.70**	**10.15**
Width...inches	12	14	20
Depth...inches	22	24	20
Height...inches	5	5	6
Weight...pounds	23.0	26.0	27.0

Lyon Two and Three Drawer Units



Used to give each employee a private drawer to keep tools on 2 or 3-shift operations. Drawers operate on roller bearings.

Each drawer has sliding tray and padlock attachment. (Padlock is not furnished.)

Green baked-on enamel finish.

No.	2792	2793
Each	**$28.00**	**37.25**
Width...inches	23½	23½
Depth...inches	20	20
Height...inches	15	22
Weight...pounds	60.0	85.0

Lyon Bench Legs

Heavy channel steel bench legs have cross member welded and riveted between channel sides. Punched every 3 inches for attachment of top. Foot of upright is flared for additional bench rigidity. But does not extend beyond edge of top. Base plate, riveted and welded to upright, is punched for attachment to floor if desired. Height, 32¼ inches.

No. **2750**, Depth 28 In., Wt., 18 Lb..............each **$4.70**

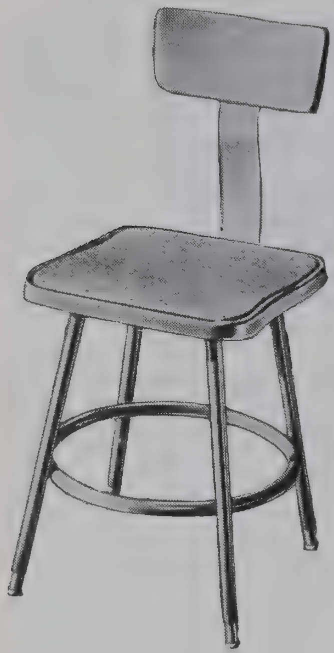
No. **2755**, Depth 34 In., Wt., 19 Lb..............each **4.95**

Royal Industrial Seating

Stationary and Adjustable Stools and Chairs

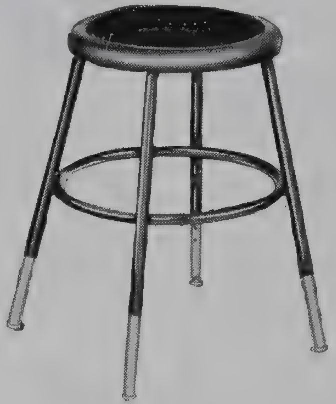
Completely welded, all steel tubular construction with casehardened steel floor glides. Available in either adjustable or stationary heights and finished in standard grey enamel, unless otherwise specified.

Adjustable stools and chairs are raised or lowered by means of leg extensions provided with lock washers to eliminate loosening and tampering. Leg extensions are adjustable at 1-inch intervals.



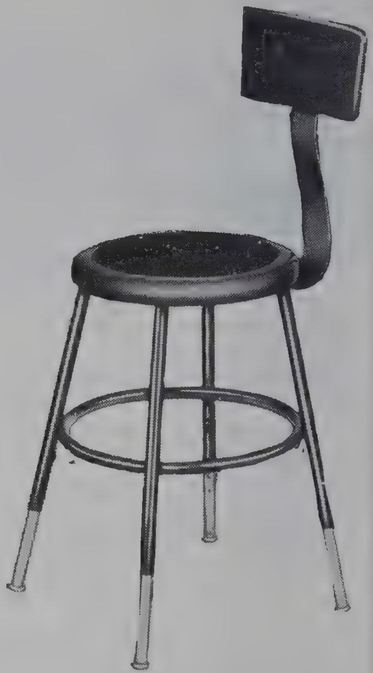
No. 515 Adjustable Chair. Heavy gage steel seat, 14½ in. square, fitted with scroll shaped, tempered Masonite panel. Large backrest has 4-way adjustment—in, out, up, down.
No. **515**-S, Adjustable from 17–25 in.
No. **515**-T, Adjustable from 24–32 in.

No. 505 Stationary Chair. Same as above without adjustable leg extensions. Stationary heights.
No. **505**-S, Heights 18, 20, 22, 24-in.
No. **505**-T, Heights 26, 28, 30, 32-in.



No. 511 Adjustable Stool. Heavy gage all steel seat, 14-in. diameter, fitted with tempered Masonite panel.
No. **511**-S, Adjustable from 17–25 in.
No. **511**-T, Adjustable from 24–32 in.

No. 501 Stationary Stool. Same as above without adjustable leg extensions. Stationary heights.
No. **501**-S, Heights 18, 20, 22, 24-in.
No. **501**-T, Heights 26, 28, 30, 32-in.



No. 513 Adjustable Stool. Heavy gage all steel seat, 14-in. diameter, fitted with tempered Masonite panel. Has 4-way backrest for complete adjustability.
No. **513**-S, Adjustable from 17–25 in.
No. **513**-T, Adjustable from 24–32 in.

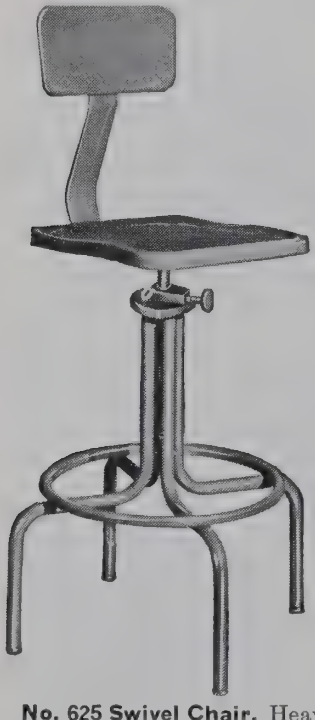
No. 503 Stationary Stool. Same as above without adjustable leg extensions. Stationary heights.
No. **503**-S, Heights 18, 20, 22, 24-in.
No. **503**-T, Heights 26, 28, 30, 32-in.

Revolving Stools and Chairs

The cluster leg design provides maximum chair stability but gives the workers' legs full freedom.

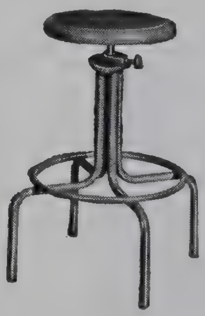
Seats revolve on hardened, tool steel screw stems, zinc plated for rust resistance. The swivel mechanism is supported by a ball-bearing raceway. Seat height adjustable by means of exclusive Micro-Hite mechanism controlled by handwheel.

All welded tubular steel construction with casehardened steel floor glides. Leatherette seats (where indicated) in black or grey.



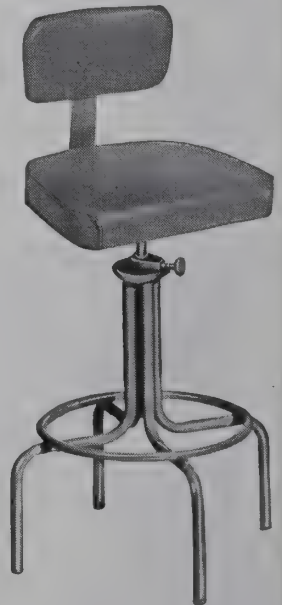
No. 625 Swivel Chair. Heavy gage steel seat, 14½ inches square. Fitted with scroll-shaped tempered Masonite panel. Large adjustable backrest.

No. **625**-S, Adjustable from 17–23 in.
No. **625**-M, Adjustable from 22–28 in.
No. **625**-T, Adjustable from 27–33 in.



No. 621 Swivel Stool. Round heavy gage steel seat, 14-in. diameter, fitted with tempered Masonite panel.
No. **621**-S, Adjustable from 17–23 in.
No. **621**-M, Adjustable from 22–28 in.
No. **621**-T, Adjustable from 27–33 in.

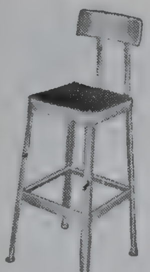
No. 623 Swivel Stool. Same as No. 621 but with 4-way adjustable back. Available in same seat heights.



No. 668 DeLuxe Swivel Chair. Fitted with 2-inch thick, foam rubber upholstered seat. Large 4-way adjustable upholstered backrest. Furnished in one height only.

No. **668**, Adjustable from 26–32 in.

Lyon Steel Stools


No. 1715

No. 1800

No. 1908

No. 1854

All welded, non-breakable construction made from round edge steel band with no rough edges to snag or tear clothing.

Large, comfortable seat, 14 inches square with rounded corners.

Strong channel brace uniform distance below seat provides foot rest. Legs taper out to insure against tipping.

Green baked-on enamel finish.

No. 1715. An 18 inch stool with back, pressed wood seat and composition casters. Swivel casters roll easily but do not sacrifice stability.

No. 1800. Basic stool 24 inches high with steel seat, forged steel glide feet, and one channel braced foot rest between the legs.

No. 1854. A 26 inch stool with No. 1950 adjustable back that may be applied to all stools, with or without pressed wood seat.

No. 1908. The 30 inch stool has 2 channel cross braces with the top brace 15 inches below seat. Equipped with No. 1955 pressed wood seat.

No. 1950 Steel Back. Attaches to bottom of steel seat. Back adjustment range is from 8 to 10 inches above seat. Curved back is 13 inches wide, 4½ inches high.

No. 1955 Pressed Wood Seat. Fits flush with face of steel seat and is held in tension. Will not warp, crack, splinter, or absorb moisture. Size 13⅛ inch square, ⅛ inch thick.

Steel Seats

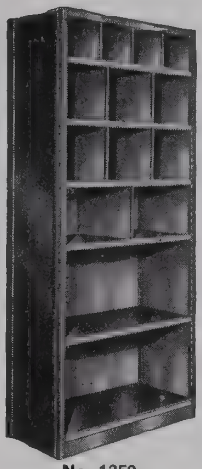
	Steel Feet						Rubber Feet					
	Without Back			With Back			Without Back			With Back		
Ht. In.	No.	Each	Wt. lb	No.	Each	Wt. lb.	No.	Each	Wt. lb.	No.	Each	Wt. lb.
18	1700	$3.35	9.0	1704	$4.70	13.0	1701	$3.95	10.0	1705	$5.30	13.0
22	1750	3.45	10.0	1754	4.80	14.0	1751	4.05	10.0	1755	5.40	14.0
24	1800	3.60	10.0	1804	4.95	14.0	1801	4.20	11.0	1805	5.55	15.0
26	1850	3.70	11.0	1854	5.05	14.0	1851	4.30	11.0	1855	5.65	15.0
30	1900	4.80	13.0	1904	6.20	17.0	1901	5.40	13.0	1905	6.80	17.0
	Rubber Feet, Steel Glide						*Casters					
18	1702	$4.05	10.0	1706	$5.40	13.0	1703	$5.10	1.00	1707	$6.50	14.0
22	1752	4.15	10.0	1756	5.50	14.0	1753	5.20	1.10	1757	6.60	15.0
24	1802	4.30	11.0	1806	5.65	15.0	1803	5.35	1.10	1807	6.75	15.0
26	1852	4.40	11.0	1856	5.75	15.0	1853	5.45	1.20	1857	6.85	15.0
30	1902	5.50	13.0	1906	6.90	17.0	1903	6.60	1.40	1907	7.95	17.0

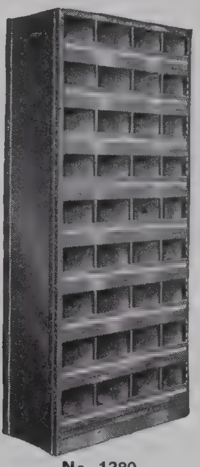
Pressed Wood Seats

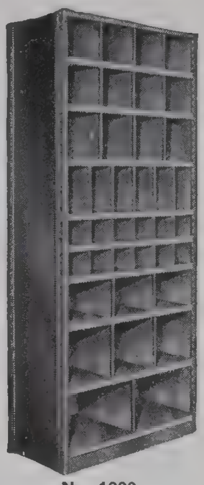
	Steel Feet						Rubber Feet					
18	1708	$4.20	10.0	1712	$5.55	14.0	1709	$4.80	11.0	1713	$6.20	14.0
22	1758	4.30	11.0	1762	5.65	15.0	1759	4.90	11.0	1763	6.30	15.0
24	1808	4.45	11.0	1812	5.80	15.0	1809	5.05	12.0	1813	6.45	16.0
26	1858	4.55	12.0	1862	5.90	15.0	1859	5.15	12.0	1863	6.55	16.0
30	1908	5.65	14.0	1912	7.05	18.0	1909	6.30	14.0	1913	7.65	18.0
	Rubber Feet, Steel Glide						*Casters					
18	1710	$4.90	11.0	1714	$6.30	14.0	1711	$5.95	11.0	1715	$7.35	15.0
22	1760	5.00	11.0	1764	6.40	15.0	1761	6.10	12.0	1765	7.45	16.0
24	1810	5.15	12.0	1814	6.55	16.0	1811	6.25	12.0	1815	7.60	16.0
26	1860	5.25	12.0	1864	6.65	16.0	1861	6.35	13.0	1865	7.70	16.0
30	1910	6.40	14.0	1914	7.75	18.0	1911	7.45	15.0	1915	8.80	19.0

*Add 2 inches to height for casters.

Equipto Iron Grip Steel Bins


No. 1250


No. 1380


No. 1220

Unit consists basically of Iron Grip shelving with adjustable dividers added (some also have bin fronts 3¼ inches high). Complete units include label holders, bases and dividers.

Bins with more or less openings than those shown are also available. Features maximum weight load, speedy assembly, ease of adjustment and single or multiple installation.

Dividers adjust instantly on 1-inch centers with snap-in Speedy Clips. On 7½-inch height and less, the front of the divider is seamed to take up minimum space in front of bin; on 9-inch height or more, front is beaded for maximum strength.

Overall size, 85½x36½ inches x 12, 18 or 24 inches deep.
Shipped knocked down.
With label holders.
Green baked enamel is standard finish.
Other colors at extra charge (specify).

With 14 Openings

Four openings, 9x9 inches; six, 12x12 inches; two, 12 inches high by 18 inches wide and two, 18 inches high by 36 inches wide.

No.	1250	1252	1254
Each	$36.25	44.20	50.58
Appr. Ship. Weight ... lb.	210	259	265
Depth of Shelf ... inches	12	18	24

With 36 Openings

Thirty-six openings, 9x9 inches. Same as 1380 less bin fronts.

No.	1290	1292	1294
Each	$49.00	59.95	72.40
Approx. Ship. Weight ... lb.	240	285	325
Depth of Shelf ... inches	12	18	24

With 36 Openings, All with 3¼-Inch Bin Fronts

Thirty-six openings, 9x9 inches.

No.	1380	1382	1384
Each	$57.10	68.05	80.50
Approx. Ship. Weight ... lb.	265	305	345
Depth of Shelf ... inches	12	18	24

With 38 Openings

Twelve openings, 9x9 inches; six, 9 inches high by 6 inches wide; twelve, 6x6 inches; three, 9 inches high by 12 inches wide; three, 12x12 inches; and two, 12 inches high by 18 inches wide.

No.	1220	1222	1224
Each	$49.00	60.25	72.50
Approx. Ship. Weight ... lb.	200	225	303
Depth of Shelf ... inches	12	18	24

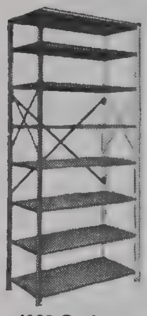
Extra Label Holders

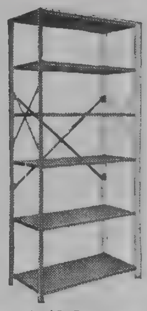
Size, 34x13⁄16 inches.
Weight, .25 pound.

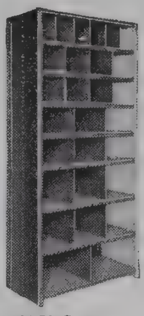
No. S-34	per 100 $15.00

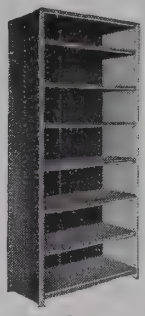
Lyon Storage Shelving

With Labelholders on All Shelves


4020 Series


4040 Series


4070 Series

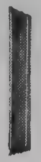

4080 Series

A INSERTS FIT HERE
B INSERTS FIT HERE
No. 4264

4230 Series

4240 Series

4533 Series


4505 Series

Only one rack end is required to end each rack of shelving. Note that a rack of shelving is an assembly of one or more sections 3 feet wide, and that when made up of more than one section, the sections join together to form a continuous run of shelving.

Open Sections

Open sections: width, 3 feet; height, 7 feet.

Series 4010

Spacing of shelves from top to bottom: five shelves, 9 inches; three shelves, 12 inches.

	With Regular Shelves			With Reinforced Shelves		
No.	4010	4011	4012	4013	4014	4015
4010 Series..ea.	$27.20	32.35	37.60	31.40	36.60	41.80
Depth.......ft.	1	1½	2	1	1½	2

Series 4020

Spacing of shelves from top to bottom: one shelf, 9 inches; six shelves, 12 inches.

	With Regular Shelves			With Reinforced Shelves		
No.	4020	4021	4022	4023	4024	4025
4020 Series..ea.	$24.60	29.10	33.75	28.35	32.90	37.50
Depth.......ft.	1	1½	2	1	1½	2

Series 4030

Spacing of shelves from top to bottom: three shelves, 12 inches; three shelves, 15 inches.

	With Regular Shelves			With Reinforced Shelves		
No.	4030	4031	4032	4033	4034	4035
4030 Series..ea.	$22.95	26.95	31.10	26.20	30.20	34.35
Depth.......ft.	1	1½	2	1	1½	2

Series 4040

Spacing of shelves from top to bottom: three shelves, 15 inches; two shelves, 18 inches.

	With Regular Shelves			With Reinforced Shelves		
No.	4040	4041	4042	4043	4044	4045
4040 Series..ea.	$20.65	24.15	27.75	23.40	26.95	30.50
Depth.......ft.	1	1½	2	1	1½	2

Rack Ends for Open Sections

No.	4530	4536	4541
Each	$4.95	5.05	5.10
Depth.......feet	1	1½	2

Tool Sections

Tool sections: width, 3 feet; height, 7 feet.

No. 4264 Reinforced Shelves

Spacing of shelves from top to bottom: one shelf, 9 inches; one shelf, 39 inches; one shelf, 12 inches; one shelf, 9 inches; one shelf, 12 inches. Depth, 1½ feet.

No. 4264.......each	$32.35

No. 4506 Rack Ends for Tool Sections

Depth, 1½ inches; height, 7 feet.

No. 4506.......each	$8.35

Closed Sections

Closed sections: width, 3 feet; height, 7 feet.

Series 4070

Spacing of shelves from top to bottom: five shelves, 9 inches; three shelves, 12 inches.

	With Regular Shelves			With Reinforced Shelves		
No.	4070	4071	4072	4073	4074	4075
4070 Series..ea.	$42.00	48.70	57.05	46.20	52.85	61.30
Depth.......ft.	1	1½	2	1	1½	2

Series 4080

Spacing of shelves from top to bottom: one shelf, 9 inches; six shelves, 12 inches.

	With Regular Shelves			With Reinforced Shelves		
No.	4080	4081	4082	4083	4084	4085
4080 Series..ea.	$31.15	35.00	40.35	34.90	38.80	44.10
Depth.......ft.	1	1½	2	1	1½	2

Series 4090

Spacing of shelves from top to bottom: three shelves, 12 inches; three shelves, 15 inches.

	With Regular Shelves			With Reinforced Shelves		
No.	4090	4091	4092	4093	4094	4095
4090 Series..ea.	$29.50	32.90	37.70	32.75	36.15	40.95
Depth.......ft.	1	1½	2	1	1½	2

Rack Ends for Closed Sections

No.	4500	4506	4511
Each	$7.45	8.35	9.55
Depth.......feet	1	1½	2

Counter Sections

Counter sections: width, 3 feet, height, 3¼ feet.

Twelve-gage top furnishes a heavy duty surface that will withstand abuse. Shelves are adjustable every 1½ inches.

Series 4230—Open Type

Two shelves, 18 inches.

	With Regular Shelves		With Reinforced Shelves	
No.	4230	4231	4232	4233
4230 Series.......each	$18.30	20.05	19.20	21.00
Depth.......feet	1½	2	1½	2

Rack Ends for Open Type

No.	4533	4537
Each	$5.25	5.55
Depth.......feet	1½	2

Series 4235—Closed Type

Two shelves, 18 inches.

	With Regular Shelves		With Reinforced Shelves	
No.	4235	4236	4237	4238
4235 Series.......each	$20.05	22.15	21.00	23.05
Depth.......feet	1½	2	1½	2

Series 4240—Closed Type

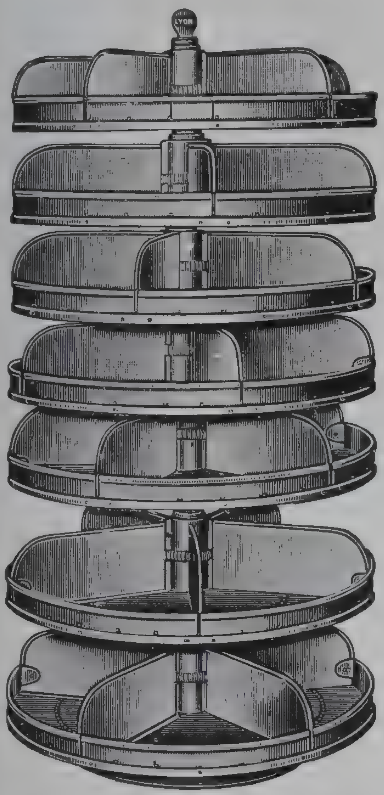
Three shelves, 12 inches.

	With Regular Shelves		With Reinforced Shelves	
No.	4240	4241	4242	4243
4240 Series.......each	$22.80	25.40	24.25	26.85
Depth.......feet	1½	2	1½	2

Rack Ends for Closed Type

No.	4505	4510
Each	$7.20	7.90
Depth.......feet	1½	2

No. 3950 Lyon Revolving Storage Bins



7-Shelf Unit

For bulk storage of small parts such as nuts, bolts, screws, etc.

Shelves revolve in either direction on ball-bearing rollers. Stabilized to prevent sagging when unevenly loaded. Broad base.

Five permanent dividers on each shelf; extra dividers available to divide into smaller units.

Rolled top edge of shelves.

Continuous label holder around each shelf for quick identification.

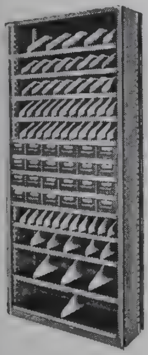
Extra wide spacing, two bottom shelves; shelves may be lowered and extra shelf added, if required.

Durable green baked-on enamel finish.

Diameter, 34 inches. Height, 65 11/16 inches.

No. **3950**, Weight, 292 Pounds................each **$101.45**

Equipto Zip-In Steel Part Bins



No. 3002

No. 3021

No. 3002. Has 144 openings; 72 bins, and 72 drawer compartments.

Zip-in shelves slide into slots like a drawer on 1½-inch centers; instantly removable.

Hook-in dividers adjust on 1-inch centers.

Full length label holders on shelves.

Rounded edges, no tearing of clothes.

Drawers with cross dividers; cross dividers have slanted back tops for inserting labels. Handle and labelholder.

36 bins, 3 inches wide, 6 inches high, 12 inches deep;
18 bins, 4 inches wide, 6 inches high, 12 inches deep;
6 bins, 6 inches wide, 9 inches high, 12 inches deep;
6 bins, 6 inches wide, 6 inches high, 12 inches deep;
4 bins, 9 inches wide, 9 inches high, 12 inches deep;
2 bins, 18 inches wide, 9 inches high, 12 inches deep.
24 drawers, 5⅝ in. wide, 3⅛ in. high, 11 in. deep.

Unit quickly changed over to meet needs; has no nuts, bolts, or other fastening devices.

Scratch, heat and wear-resistant polymerized plastic coating finish; olive green, other colors are extra.

Height, 84 inches; 37¼-inch wide; 12¼-inch deep.

Shipped knocked down.

No. **3002**, Approx. Ship. Wt., 256 Lb..........each **$95.26**

No. 3021. With shelves only; if equally spaced, 5 openings 12 inches high; 2 openings 10½ inches high; adjustable on 1½-in. centers. Dividers, drawers may be added.

Height, 84 inches; 37¼-inch wide; 12¼-inch deep.

Shipped knocked down.

No. **3021**, Approx. Ship. Wt., 104 Lb..........each **$37.50**

Equipto Heavy Duty Steel Drawers

No. 8 (at Left)—No. 8505 (at Right)

Each drawer is 11 inches by 5⅝ inches by 3⅛ inches high.

Each drawer is equipped with two adjustable and removable cross dividers, making three compartments per box.

Label holders provided on every drawer and divider.

Drawers have corrugated grooves so that dividers adjust on 1-inch centers.

Divider tips back at top so that label is visible, even when drawer is full.

Extra dividers may be ordered.

No. 8, Eight Steel Drawers in Frame

With 24 adjustable compartments.

Width, 23½ inches.

Height, 10 inches.

Depth, 12 inches.

No. **8**; Approx. Ship. Weight, 39 Lb ....each **$14.35**

No. 8505

Drawer with handle.

Size, 11x5⅝ inches by 3⅛ inches high.

No. **8505**; Weight, 2 Pounds..................each **.80**

No. 8710

Cross dividers for No. 8505, adjustable on 1-inch centers.

Size, 3x5⅜ inches.

No. **8710**....................................each **.09**

No. 8711

Lengthwise divider for No. 8505; may be used with 2 or more more 8710 cross dividers.

Size, 2x11 inches.

No. **8711**....................................each **.10**

No. 11, Eighteen No. 8505 Steel Drawers in Frame

With 54 adjustable compartments.

Fits readily under counters, work benches, mailing tables, bolted to the wall—in any spot the user may need it.

May be stacked up to five high or used as a counter.

Ideal as insert in shelving.

Width, 34 inches.

Height, 13¾ inches.

Depth, 12 inches.

Each of the 18 boxes comes equipped with two adjustable and removable cross dividers, making three compartments per box.

Label holders on every drawer and divider.

No. **11**; Approx. Ship. Weight, 80 Pounds......each **$23.35**

No. 22

Same as No. 11 (above) but 18 inches deep.

No. **22**; Approx. Ship. Weight, 110 Pounds......each **$34.95**

No. S-34 Label Holders

Size, 34x1⅛ inches.

Weight, .25 pound.

No. **S-34**..................................per 100 **$15.00**

Equipto Modern-Flow Lockers

Attractive design, easily assembled; strong locker door with rounded top and bottom; electrically welded angles; reinforced on all four sides. Large 16-gage hinges, welded to door and locker frame. Recessed handle.

Pre-latching mechanism provides independent operation of all latches (4 on single tier, 2 on double tier). Shock and sound of door closing absorbed by live rubber bumpers.

Standard equipment includes base, padlock attachment and hardware. Interior hardware on 15-inch or less depth lockers includes center hook and three wall hooks; on 18-inch depth or more, a coat rod and three wall hooks. Hooks and coat rods lock on without bolts. Hat shelf is included on single tier models. Can also be furnished less base, for recessing in walls; any special sizes and styles available on special order. Accessories include sloping tops, flat key locks and combination locks.

Finish, grey baked enamel over rust-resisting phosphate-treated steel. Other colors available at extra cost.

Packed as single units or groups of 3 which have two common end panels, two finishing end panels; knocked down.

Single Tier

Single Tier, 1 Unit Wide

No.	Each	—Dimen., In.— Width	Depth	Ht. Opening	Ht. Overall	No. Units Wide	No. of Openings	Ship. Wt. Lb.
121266	$17.35	12	12	60	66	1	1	55
121266–3	44.15	12	12	60	66	3	3	155
121566	18.70	12	15	60	66	1	1	63
121566–3	46.60	12	15	60	66	3	3	165
121866	20.70	12	18	60	66	1	1	75
121866–3	49.50	12	18	60	66	3	3	188
151566	21.05	15	15	60	66	1	1	78
151566–3	52.15	15	15	60	66	3	3	180
151866	22.05	15	18	60	66	1	1	80
151866-3	55.15	15	18	60	66	3	3	194
121278	19.75	12	12	72	78	1	1	59
121278–3	48.25	12	12	72	78	3	3	165
121578	20.75	12	15	72	78	1	1	76
121578 3	51.25	12	15	72	78	3	3	194
121878	21.85	12	18	72	78	1	1	83
121878–3	54.35	12	18	72	78	3	3	225
151578	22.05	15	15	72	78	1	1	84
151578–3	55.15	15	15	72	78	3	3	240
151878	23.05	15	18	72	78	1	1	92
151878–3	58.15	15	18	72	78	3	3	228
152178	26.00	15	21	72	78	1	1	96
152178–3	62.75	15	21	72	78	3	3	240
181878	24.30	18	18	72	78	1	1	98
181878-3	62.30	18	18	72	78	3	3	258
182178	25.95	18	21	72	78	1	1	102
182178–3	65.55	18	21	72	78	3	3	264

Double Tier

Double Tier, 1 Unit Wide

121266D	$19.90	12	12	30	66	1	2	66
121266D–3	50.70	12	12	30	66	3	6	160
121278D	21.65	12	12	36	78	1	2	74
121278D–3	54.85	12	12	36	78	3	6	192
121578D	23.15	12	15	36	78	1	2	75
121578D–3	57.95	12	15	36	78	3	6	196
121878D	24.40	12	18	36	78	1	2	88
121878D–3	60.40	12	18	36	78	3	6	230
151578D	24.20	15	15	36	78	1	2	88
151578D–3	61.40	15	15	36	78	3	6	242

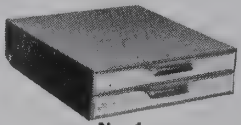
Multiple Tier

901266T	$22.35	9	12	20	66	1	3	55
901266T–3	58.05	9	12	20	66	3	9	155
901278T	22.65	9	12	24	78	1	3	59
901278T–3	59.35	9	12	24	78	3	9	165
121266F	22.40	12	12	12	66	1	5	60
121266F–3	57.80	12	12	12	66	3	15	170
121278S	25.20	12	12	12	78	1	6	65
121278S-3	67.30	12	12	12	78	3	18	180
121278T	24.85	12	12	24	78	1	3	65
121278T-3	65.85	12	12	24	78	3	9	180
121566F	23.85	12	15	12	66	1	5	68
121566F–3	61.25	12	15	12	66	3	15	170
121578S	27.20	12	15	12	78	1	6	80
121578S–3	70.40	12	15	12	78	3	18	230
151566Q	24.95	15	15	15	66	1	4	82
151566Q–3	58.90	15	15	15	66	3	12	235

Equipto Little Gem Drawer Cabinets

For Small Parts

Convenient storage capacity for small parts. Rugged one-piece welded construction. Olive green baked enamel.



No. 1

No. 1. Consists of two 1½-in. drawers in a one-piece frame.

Each drawer is furnished with 8 dividers, provides 24 adjustable compartments.

By adding extra dividers a total of 28 compartments per drawer or 56 per unit is possible.

No. 1, Size, 3¼x11x11 Inches....................each **$6.95**

No. 2. Has double the capacity and compartments of No. 1 unit. Has four drawers 1½-in. high.

Furnished with dividers providing for a total of 48 adjustable compartments. By adding extra dividers a total of 112 compartments per cabinet is possible.

No, 2, Size, 6½x11x11 Inches.................each **$13.90**

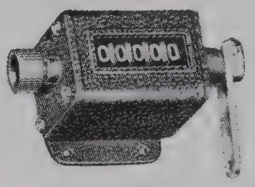
No. 3. Has triple the capacity and compartments of No. 1 unit. Has six drawers 1½-inches high.

Furnished with dividers providing for a total of 72 adjustable compartments. By adding extra dividers a total of 168 compartments per cabinet is possible.

No. 3, Size, 9¾x11x11 Inches.............. ...each **$20.85**

Series C1122 Veeder-Root Ratchet Counters

Small Reset



Adds one for each oscillation of lever through angle of 40 degrees. Made with stops which limit lever movement to 45 degrees. Must oscillate more than 36 degrees to insure correct counting.

Standard number of figures, 5.

Maximum recommended speed is 500 to 1000 counts per minute, depending on installation.

Made with corrosion-resistant parts.

White figures on black background, .166 inch high.

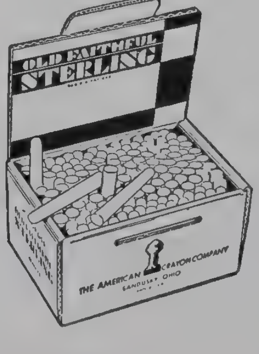
Shaft on right or left side. Spring-to-return lever. Can be furnished with thumb lever if specified.

Following optional features available; with 3 or 4 figures; non-reset; spring-to-return lever omitted; furnished as printing-wheel register; mounting flange at window; 1¼-inch diameter reset knob; with lock and key reset.

Shipping weight, ⅜ pound.

No. **C1122–15**, with No. 1 Shaft Rotation........each **$9.15**
No. **C1122–25**, with No. 2 Shaft Rotation........each **9.15**
No. **C1122–35**, with No. 3 Shaft Rotation........each **9.15**
No. **C1122–45**, with No. 4 Shaft Rotation........each **9.15**

Sterling "Old Faithful" White Chalk Crayons



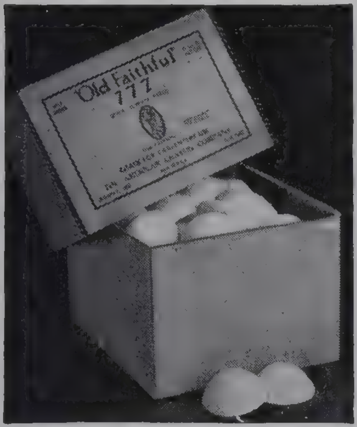
Manufactured from domestic materials. Makes smooth, even marks.

Free from grit. Can be used on finest blackboard.

Packed 1 gross in a strong hinged corrugated box; 25 gross in a case.

Shipping weight of case, 56 pounds.

Per Gross.. **$.56**



No. 777 Carpenters' Chalk

Made in hemispherical cakes, 2½″ dia.x1⅛″ high.

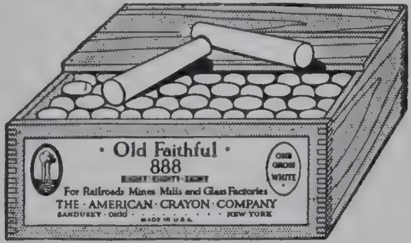
Used by carpenters, surveyors, paper hangers, machinists, etc., for chalking lines, marking lumber, and also for laying out pattern work on metal.

Packed ½ gross in box.

Weight, 5 pounds.

White. . per gross	$3.00
Red. . . . per gross	3.50
Blue. . . per gross	3.50

No. 888 American Railroad Crayons



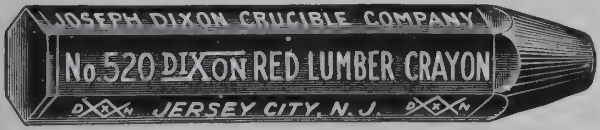
Used by leading railroads, glass manufacturers, machinists and coal miners.

Made in sticks 4 inches long by 1-inch in diameter. Makes bright, temporary marks.

Packed 1 gross in a strong, lock-cornered wood box, 5 gross in a case. Weight, 67 pounds.

		White	Red	Blue	Yellow
No. 888.	per gross	$2.64	3.14	3.14	3.14

Dixon Lumber Crayons



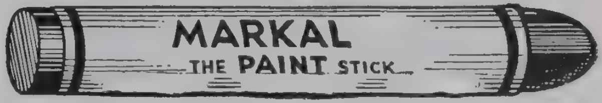
Length, 4½ inches; diameter, ½ inch; hexagon shape.

Packed 12 in box; 6 boxes in carton.

No.	Per Gross	Color	Grade	Wt. per Gross Pounds
361	$21.60	Black(Graphite)	Medium	10
362	21.60	Black (Graphite)	Hard	10
365	21.60	Black (Graphite)	Very Soft	10
365½	21.60	Black (Graphite)	Soft	10
485-S	48.00	Purple (Indelible)	Soft	7
485-H	48.00	Purple (Indelible)	Hard	7
492	21.60	Pink	Regular	12
493	21.60	Purple	Regular	12
494	21.60	Carbon Black	Regular	12
495	21.60	Brown	Regular	12
496	21.60	Yellow	Regular	12
497	21.60	Terra Cotta	Regular	12
520	21.60	Red	Regular	12
520½	21.60	Red	Soft	12
521	21.60	Blue	Regular	12
521½	21.60	Blue	Soft	12
522	21.60	Green	Regular	12
523	21.60	White	Regular	12
525	21.60	Aluminum	Regular	12

Markal Paint Sticks

Permanent—Fadeproof—Weatherproof



Markal is actual paint in stick form—not chalk or crayon; has legibility and permanency found in liquid paints.

Type A. For annealing and welding; for temperatures from 60° to 1200°F. Adapted for plate mills, stickers at open hearth, or other surfaces where great variation in temperature is encountered. Available in white and yellow.

Type B. All-purpose cold surface marker for marking oily, sleek, icy, wet, dry, rough or extremely cold surfaces, or combined water and oil film surfaces; for rough castings, forgings, lumber, railroads, rubber, etc. Removable in pickling bath. Furnished in red, white, blue, green, yellow, black, purple, pink, orange and brown.

Type B, ⅜-Inch Size. Same as Type B regular, but for marking smaller surfaces such as instruments. Available in white, red, blue, green, yellow and black.

Type B-E. Wide heavy marking for marking on extremely rough surfaces such as bark, rough logs, very rough castings, ingots, etc. In red, white, blue, green, yellow and black.

Type C. For marking cold surfaces of cold hot rolled steel which require quick drying. For marking of metal, 0° to 160°F. Marks come off in pickling bath. Available in red, white, blue, green, yellow and black.

Type C, ⅜-Inch Size. Marks same as Type C regular. In red, white, blue, green, yellow and black.

Type D-A. For marking metals and lumber subjected to steam conditions, cleaning solutions or grease cutting solvents, acids or mild alkalies. Withstands pickling bath. In red, white, blue, green, yellow and black.

Type H. For temperatures from 150° to 1200°F. Does not run or flow while hot, or come off after cooling. Does not discolor, char, or peel. Permanent and weatherproof. Easily removed in pickling bath. Available in red, white, blue, green, yellow and black.

Type H-T. For temperatures from 250° to 1400°F. Easily removed in pickling bath. Greater mileage, even at red heat temperature. Does not flow, char or discolor; permanent. Available in white and yellow.

Type L. Fast drying marker for lumber, green or seasoned, rough or smooth.
Furnished in red, white, blue, green, yellow and black.

Type M. For marking surfaces to be annealed at temperatures up to 1800°F. Marks will withstand immediate quenching in water or oil. Furnished in white only.

			Box		Gross				
Type	Diam. In.	Lgth. In.	Per Box	No. Sticks in Box	White and Black per Gross	Yellow per Gross	Other Colors per Gross	No. of Boxes	Wt. Lb.
A	11/16	5	$1.30	12	$12.00	$13.00	. . . . .	12	17
B	11/16	5	1.20	12	11.25	11.50	$11.50	12	16
B-⅜	⅜	5	3.25	36	10.25	10.75	10.75	4	6
B-E	11/16	5	1.35	12	12.75	12.95	13.25	12	16
C	11/16	5	1.20	12	11.25	11.50	11.50	12	16
C-⅜	⅜	5	3.25	36	10.25	10.75	10.75	4	6
D-A	11/16	5	1.75	12	16.75	17.45	17.45	12	16
H	13/32	4¾	3.65	36	11.00	11.50	11.50	4	8
H-T	13/32	4¾	3.75	36	12.00	13.00	. . . . .	4	8
L	11/16	5	1.15	12	10.50	10.50	10.50	12	14
M	11/16	5	1.35	12	12.50	. . . . .	. . . . .	12	16

Paint sticks are packed in single color unit packages.

Each stick of Types B, B⅜, BE, C, C⅜, D-A, L and M individually encased in handy adjustable cardboard holder.

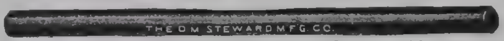
Types H and H-T have wooden holder supplied with each 3-dozen unit. Additional regular size wooden holders are available at 15 cents each. A 15-inch wooden holder can be supplied for extremely hot surfaces at 90 cents each.

All types are packed one gross in a carton.

Steward Genuine Soapstone Pencils

Made from high grade material, carefully selected. Very strong and durable. Packed 1 gross to box; 24 gross to case.

Round



Dimensions, 5x¼ inches. Weight of case, 130 pounds.

Per Gross.. ......

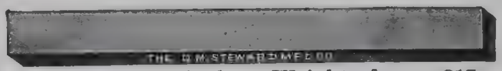
Square

THE D M STEWARD M F G CO

Dimensions, 5x¼x¼ inches. Weight of case, 135 pounds.

Per Gross.. ....

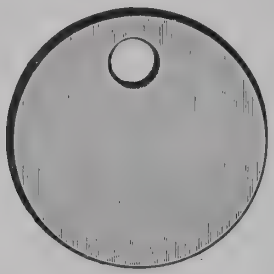
Flat



Dimensions, 5x½x³⁄₁₆ inches. Weight of case, 217 pounds.

Per Gross............................... ....

Brass Tool Room or Miners' Checks



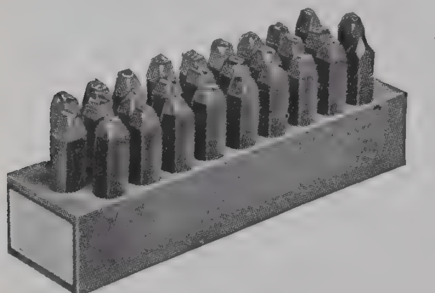
Made of brass about ¹⁄₃₂-inch thick, bright finish.

1⅜-inch diameter ⅛-inch hole. Can be supplied in other diameters and with slot.

Per Pound... .....

Young Steel Stamps

Letters and Figures



High carbon steel. Sharp characters insure deep, clear impression; smooth hand ground taper. Character ends are heat treated to prevent chipping. Tough shank prevents bending.

Crowned hammer end assures hammer striking center of stamp. Tempered end prevents mushrooming.

Rustproofed.

In lacquered wood box.

Sets of letter, sizes ¹⁄₃₂ through ¼ inch, consist of 28 characters including & and period.

Sets of letters ⁵⁄₁₆ through ½ inch consist of 27 characters, the period being omitted.

Sets of figures consist of nine characters from 0 to 8, the 6 being also used for the 9.

	Machine Made Gothic Face			Hand Cut Gothic Face			Wt., Lb.	
Size In.	Letters per Set	Figures per Set	Singles Each	Letters per Set	Figures per Set	Sin. gles Each	Letters	Figures
¹⁄₃₂	$7.50	$2.50	$.40	$15.00	$5.00	$.60	1⁵⁄₁₆	½
¹⁄₁₆	6.00	2.00	.35	10.50	3.50	.40	1⁵⁄₁₆	½
³⁄₃₂	6.00	2.00	.35	10.50	3.50	.40	1⁵⁄₁₆	½
⅛	6.00	2.00	.35	10.50	3.50	.40	1⁵⁄₁₆	½
⁵⁄₃₂	6.00	2.00	.35	12.00	4.00	.50	1⁵⁄₁₆	½
³⁄₁₆	7.50	2.50	.40	13.50	4.50	.50	2⁷⁄₁₆	¹³⁄₁₆
¼	9.00	3.00	.45	16.50	5.50	.70	3½	1⅛
⁵⁄₁₆	10.50	3.50	.50	19.50	6.50	.80	6³⁄₁₆	2⁷⁄₁₆
⅜	13.50	4.50	.60	24.00	8.00	.90	7⅞	2¾
½	18.00	6.00	.75	33.00	11.00	1.30	11½	3⅝

No. 211 Behr-Cat Strapping Tape

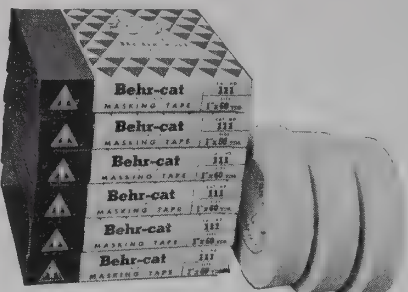
60-Yard Rolls—Filament Reinforced

An extra strong, filament reinforced, pressure-sensitive tape for banding metal parts and wrapping wire coils, tubes, plate glass and rods. Holds wood or metal objects securely without danger of damaging edges. Box, 12.

Wdth. Inch	Per Roll	Rolls in Bulk Ctn.
¼	$1.20	144
⅜	1.50	96
½	1.80	72
⅝	2.10	60
¾	2.40	48
⅞	2.70	44
1	3.00	36

Behr-Cat Masking Tape

No. 111. A standard tape for spray paint masking; a good general purpose tape. Although not specifically designed as a high temperature masking tape it can be used for masking in infrared and regular heated ovens at temperatures over 200°F.



Flexibility of creped backing adapts to all types of curved work.

Thin; minimum build-up at edges when paint sprayed on. Resists moisture; unaffected by solvents in paint.

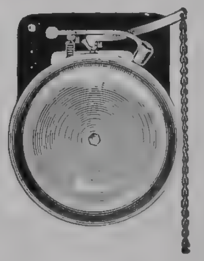
No. 112. A creped paper masking tape with special heat-resistant properties, designed for use in applying sprayed finishes or protective coatings that are to be baked on. May be exposed for prolonged periods of time to temperatures between 250 and 350°F.; may be subjected to higher temperatures when duration of heat is relatively short.

60-Yard Rolls—Individually Boxed or Bulk

	Boxed		Bulk			Boxed		Bulk	
Size In.	Per Roll	Rolls per Ctn.	Per Roll	Rolls per Ctn.	Size In.	Per Roll	Rolls per Ctn.	Per Roll	Rolls per Ctn.
¼	$.78	12	$.58	144	1	$1.55	12	$1.16	36
⅜	.89	12	.67	96	1¼	1.94	12	1.45	28
½	1.02	12	.77	72	1½	2.33	12	1.74	24
⅝	1.12	12	.84	60	2	3.10	12	2.32	20
¾	1.21	12	.91	48	3	4.65	12	3.48	12
⅞	1.41	12	1.06	44	...	....	..	....	..

Other Widths Up To 36-Inch: Add 25 per cent of 1-inch width price for each additional ¼-inch of width or fraction thereof. Drop any fraction of a cent.

No. 60 Standard Trip Gongs

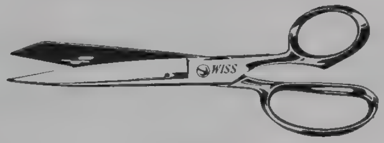


Furnished with quality hot pressed steel gong shell, black. Base is of grey iron, painted black. Hammer and lever are of cast brass. Gong rings once for each down pull of lever. Chain is not furnished.

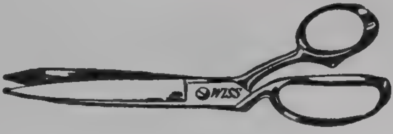
Diameter......inches	4	6	8	10	12
No. 60..........each	$5.00	6.00	8.00	9.50	20.50

Prices on 14, 16, 18, and 20-inch gongs upon application.

Wiss Trimmers



Straight



Bent

Made with crucible steel inlaid blades. Nickeled. Special steel screw and nut on 9-inch and larger sizes. Japanned handles.

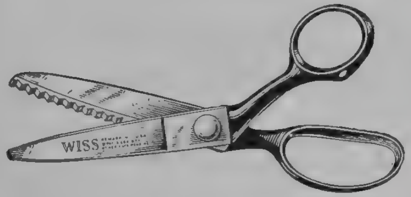
Straight trimmers have two sharp points on 10-inch and larger sizes.

Bent trimmers which can cut cloth lying flat on table, have two sharp points on 10 inch and larger sizes.

Straight					Bent				
		Lgth, In.		Wt. Lb.			Lgth., In.		Wt. Lb.
No.	Each	Overall	Cut	per Doz.	No.	Each	Overall	Cut	per Doz.
36	$3.00	6	2¾	2	26	$3.00	6	2½	2
36½	3.15	6½	3	2⅝	27	3.25	7	3⅛	3
37	3.25	7	3¼	3	*27½	3.50	7½	3⅜	3½
*37½	3.40	7½	3½	3½	28	3.75	8	3¾	4½
38	3.65	8	3⅞	4¼	29	4.50	9	4¼	6¾
39	4.50	9	4¼	6	†20	5.50	10	5	9¼
30	5.50	0	5	9	21	6.00	11	5⅜	10¾
....	....	...	...	...	22	7.50	12	6¼	14½

*Also made left-hand—$3.65. †Also made left-hand—$5.75.

Type C Wiss Pinking Shears



Used in place of picoting, bias binding and rolled edges. Supplies a practical finish. Cuts a varied range of fabrics. Can be used on sheerest fabrics to medium-heavy woolens. Also cuts multiple thicknesses.

Made of hot drop-forged steel. Individually packed.

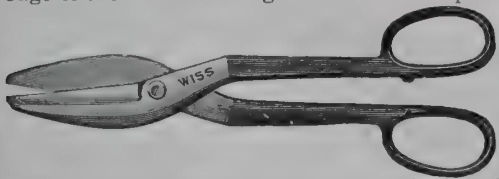
	Black Handle			Chrome Plated		
No.	*CB-5	CB-7	CB-9	*CC-5	CC-7	CC-9
Each	$4.25	6.95	7.95	4.75	7.95	8.95
Length Overall.....in.	5½	7½	9	5½	7½	9
Length of Cut......in.	2	3	3½	2	3	3½
Weight, Boxed......oz.	4	7¼	10¼	4	7¼	10¼

Leather Case, Russet Color; Packed 12 in a Box..ea. **$1.50**

*Has double ring handles for either right or left hand use.

Wiss Regular Tinners' Snips
Inlaid Steel Blades

A piece of fine crucible bar steel is welded to the inside edge of the blades. This gives the Wiss Snip its perfect cutting edge—an edge that will not break or chew the work and is always sharp.

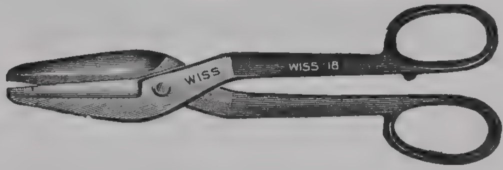


Blades are perfectly shaped, with points made strong and the handles formed so that they will not tire the hand.

Packed 1 in a box.

No.	10	9	8	7	6½
Each	$5.00	5.50	6.25	6.75	7.25
Full Length.........inches	11½	12½	13¾	14¼	15¾
Length Cut..........inches	2½	3	3½	4	4½
Weight.............pounds	1½	2	2½	3	3⅞

Wiss Combination Tinners' Snips
With Inlaid Steel Blades

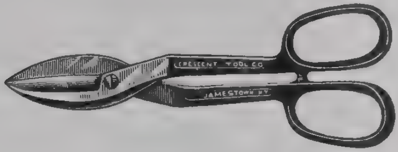


These snips will cut curved as well as straight work.

Frame is forged from a tough, special forging steel under a powerful hammer. Handles can be hammered, bent and twisted without breaking.

No.	19	18	17
Each	$5.90	6.65	7.25
Full Length...............inches	12½	13¾	14½
Length of Cut.............inches	3	3½	4
Weight...................pounds	1⅞	2⅜	2⅞

Crescent Tinners' Snips

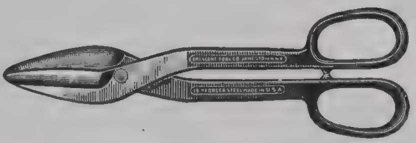


Forged of special steel. Blades have keen, strong edge that will retain sharpness. Powerful leverage makes them cut evenly and smoothly. Has polished blades and blue enameled handles.

Packed 1 in a box.

No......	S47	S48	S49	S410	S411	S412	S413	S414
Each....	$2.10	2.35	2.55	2.90	3.00	3.55	4.45	5.00
Lgth..in.	7	8	9	10	11	12¾	13⅞	14⅞
Cut...in.	1¾	1⅞	2	2¼	2½	3	3½	4
Wt....oz.	7	8	9	13	19	25	32	38

No. U412 Crescent Combination Pattern Snips



Forged steel snip designed after the standard circular cutting style. Have keen edges, cut smoothly and easily.

Polished blades. Blue enameled handles.

Length, 12 inches.

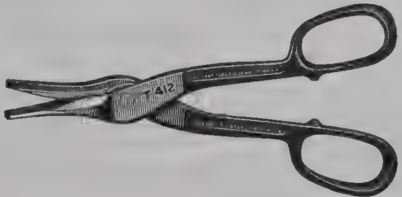
Cut, 3 inches.

Weight, 1 pound 12 ounces.

Packed 1 in a box.

No. U412.......................................each **$3.90**

Crescent Circular Cutting Snips



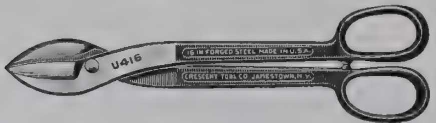
Designed specially for cutting out intricate patterns and curves. Cuts smoothly and leaves the metal unbent.

Forged of special steel; blades ground on special machines. Has polished blades and blue enameled handles.

Packed 1 in a box.

No.	T47	T412
Each	$2.80	3.90
Length..........................inches	7	12
Cut.............................inches	1¾	3
Shipping Weight.................ounces	7	25

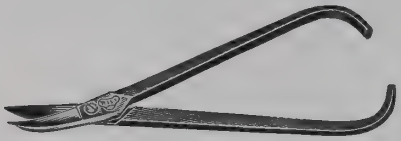
No. U416 Crescent Heavy Duty Snips


U416
16 IN FORGED STEEL MADE IN U.S.A.
CRESCENT TOOL CO. JAMESTOWN, N.Y.

Cuts curves or straight lines. Polished blades; blue enameled handles. Length, 16¼ inches; cut, 2½ inches.

No. U416, Packed 1 in a Box; Wt., 3½ Lb.......each **$6.75**

No. J-7 Wiss Light Metal Snips

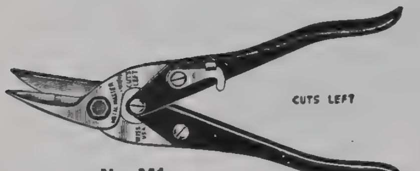


For light metal work. Made of fine tool steel. Length, 7 inches; cut, 1¼ inches. Weight per dozen, 3 pounds.

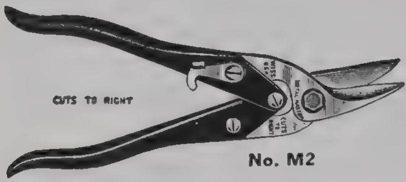
No. J-7, Curved	each	**$2.65**
No. J-7, Straight	each	**2.50**

Wiss Metal-Master Compound Action Aviation Snips

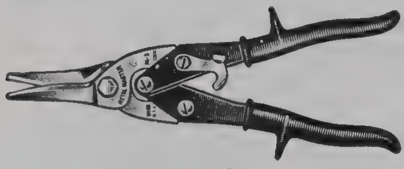
Capacity, up to 18-Gage Sheet Metal



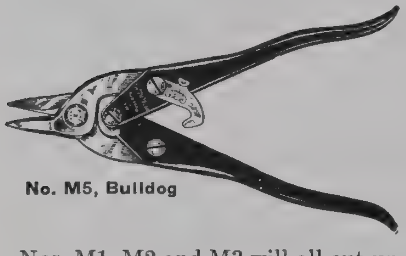
No. M1



No. M2



No. M3
With Rubber Guard Grips



No. M5, Bulldog

Used in aviation, air conditioning, and sheet metal industries.

Compound leverage for cutting power with minimum effort. Cuts circles, squares, intricate patterns, from stainless, Dural and Monel metals up to 18 gage.

Cuts ends of tubing, exhaust manifolds, etc., up to No. 18 gage.

Cutting head drop forged from manganese molybdenum steel. Bolts and nuts of nickel steel to government specifications. All parts interchangeable.

Fine serration on both jaws is standard; deeper serration if specified.

No. M3 is designed primarily for straight cutting, but will cut curves or irregular shapes in either direction.

Nos. M1, M2 and M3 will all cut up to 18 gage.

No. M5 Bulldog will notch or nibble up to No. 16 gage.

For cutting curves, Nos. M1 and M2 are to be preferred to No. M3. Vinyl guard grips are extra.

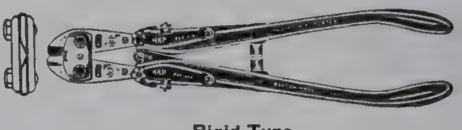
Packed individually. Average weight each, 12 ounces.

No.	Each	Type of Cut	Length Inches	Length Cut Inches
M1	**$4.25**	Left	10	1⅜
M2	**4.25**	Right	10	1⅜
M3	**4.25**	Straight & Combination	10	1½
M5	**4.25**	Bulldog	9⅛	⅞

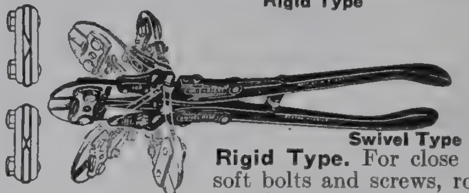
Vinyl Guard Grips.........................per pair **$.35**

Porter Clipper Cut Bolt Clippers

Rigid or Swivel Type



Rigid Type



Swivel Type

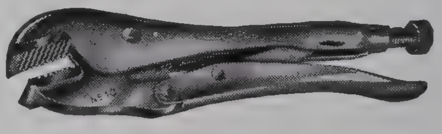
Rigid Type. For close cutting of all soft bolts and screws, rods, wire, etc. Not for material in excess of 200 Brinell hardness or 15 Rockwell C Scale. Cutting edges are in line with handles and beveled almost entirely from one side. Permits flush cutting of projecting ends.

Swivel Type. Wrist action enables tool to reach around corners and over or under obstructions. Head may be swiveled through 180° arc with full leverage in any position.

No.	Complete Tool Each	*Complete Cutter-head Each	*Jaws Per Pair	Approx. Length Tool Inches	Cap., In. Soft Bolts in Thrd.	Cap., In. Soft Rods	Approx. Wt. Lb.
Rigid Type							
14-NE	$10.20	$6.10	$5.20	14	5/16	¼	2⅞
0-NE	11.50	6.60	5.70	18	⅜	5/16	4¼
1-NE	13.70	7.90	6.80	24	7/16	⅜	6¾
2-NE	17.60	9.80	8.70	30	9/16	½	10½
3-NE	22.80	12.40	11.00	36	⅝	9/16	14¾
4-NE	33.00	15.00	12.90	42	¾	⅝	17¾
Swivel Type							
0-SH	$15.50	$6.60	$5.70	19	⅜	5/16	4⅝
1-SH	17.70	7.90	6.80	25	7/16	⅜	7¾
2-SH	21.50	9.80	8.70	31	9/16	½	11½

*Same jaws and heads can be used for rigid or swivel.

Vise-Grip Wrenches



A tool which serves as an adjustable end wrench, locking wrench, pipe wrench, vise, clamp, plier, and toggle press.

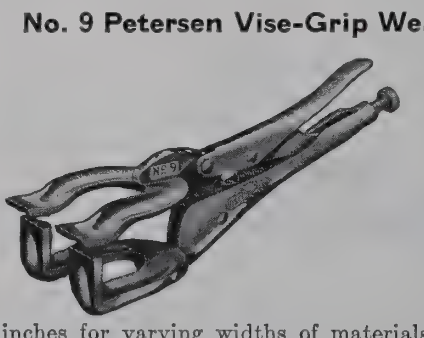
Has a double lever action that locks jaws to the work with a ton of pressure. Locks with a grip that holds until lever is snapped open.

Will hold anything whether round, square, etc. Adjustable to plier action. Works in close quarters at any angle.

Made of fine tool steel; nickel plated finish.

Length	inches	7	10
Each		**$1.85**	**2.15**
Adjustable to	inches	1⅛	1¼
Weight	ounces	12	19

No. 9 Petersen Vise-Grip Welding Clamps



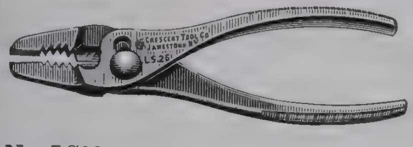
Built of special alloy steels, scientifically hardened and tempered.

Special U-shaped jaws provide perfect visibility and working room. End screw provides quick jaw-opening adjustment up to 1⅝ inches for varying widths of materials. Aligns edges for welding almost instantly and holds material in perfect alignment firmly, without use of hands. Nickel plated.

Length, 9 inches. Shipping weight, 2 pounds.

No. 9...each **$2.95**

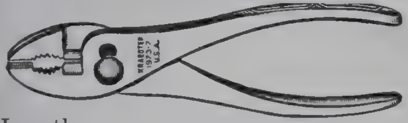
No. LS26 Crescent Side Cutting Slip Joint Pliers



Regular Crescent Thin Nose Plier with side cutter added. Nickel plated, hand buffed. Size, 6 inches; 1-inch capacity. Weighs 5 ounces.

No. **LS26**.................................... each **$1.90**

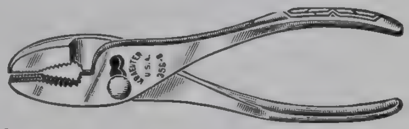
No. 1973 Kraeuter Mechanics' Side-Cutting Combination Pliers



Slip-joint; don't-slip handle.

Length	inches	5½	7
No. **1973**, Full Nickel Plated	each	**$3.00**	**3.30**
Weight per Dozen; 6 in Box	pounds	3½	7¼

No. 356 Kraeuter Griptite Combination Pliers



Designed for heavy duty.

Made of electric furnace tool steel.

Slightly tapered nose. Fitted with non-slipping serrated edge wire cutters. The two larger sizes have three slip-joint adjustments which give a wider range of parallel grips on large nuts.

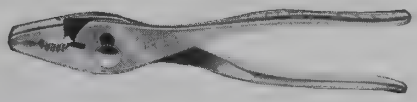
Don't-slip handle, full nickel finish.

Packed 6 in a box.

Length	inches	5½	6	8	10
No. **356**	each	**$1.95**	**2.20**	**2.75**	**3.30**
Weight per Dozen	pounds	3½	5¼	8¾	14

Champion DeArment Channel Lock Heavy Duty Slip-Joint Pliers

With Wire Cutters

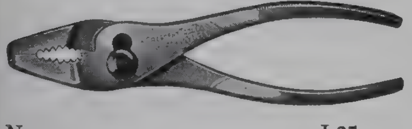


Polished steel finish. Knurled grips.

Packed 6 in a carton.

No.		546	548	5410
Each		**$2.00**	**2.30**	**2.76**
Length	inches	6	8	10
Weight per Dozen	pounds	5½	7½	10½

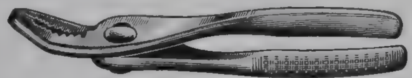
Crescent Thin Straight Nose Pliers



Made of alloy steel. Slip joint. Convenient for narrow places. Checker-dot handles, nickel plated.

No.		L25	L26	L28	L210
Each		**$1.30**	**1.30**	**1.60**	**2.35**
Length	inches	5	6	8	10

No. J26 Crescent Thin Bent Nose Pliers



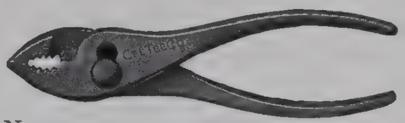
Made of alloy steel.

For use on check nuts and similar work. Has slip joint.

Size, 6 inches; capacity, 1 inch.

No. **J26**, Nickel Plated........................each **$1.75**

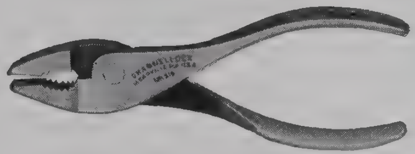
CeeTeeCo Combination Pliers



Nickel-plated finish.

No.		H25	H26	H28	H210
Each		**$.75**	**.75**	**1.10**	**1.55**
Size	inches	5	6	8	10
Capacity	inches	¾	1	1¼	1½
Weight	ounces	3½	8	10	16

No. 516 Champion DeArment Channel Lock Thin Nose Slip-Joint Pliers

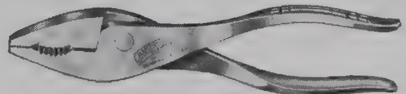


Polished steel finish. Knurled grips. Length, 6 inches. Packed 6 in a carton. Wt. per doz., 4¾ lb.

No. **516**. .ea. **$1.85**

Champion DeArment Channel Lock Slip-Joint Pliers

With Side Cutters



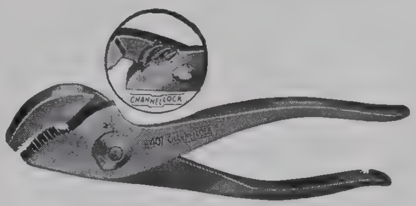
Polished finish.
Knurled grips.
Length, 7 inches.

Packed 6 in a carton. Weight per dozen 6¾ pounds.

No. **537**..each **$3.20**

No. 407 Champion DeArment Channellock Gripping Pliers

Self Gripping



For removing small grease plugs, Alemite and copper pipe connections, etc. Forged from high grade steel, heat treated.

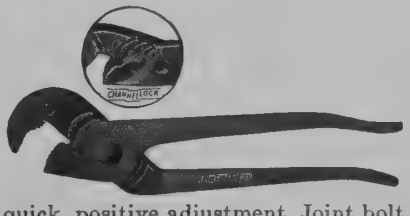
Max. cap. ⅛ to ⅝-in. Pressure need be applied only to one handle, the more pressure, the tighter pliers grip. Channellock feature, removes all strain from joint bolt. Nose is thin enough to clear filler caps. Two adjustments. Length, 7 in. Knurled grips. Polished finish.

Packed ½ dozen per carton. Weight per dozen, 6¼ lb.

No. **407**..each **$2.30**

No. 410 Champion DeArment Channellock Gripping Pliers

Self Gripping



Tongue and groove (Channellock) feature provides vise-like self gripping power on studs, brake rods, battered nuts, pipe, etc. Provides quick, positive adjustment. Joint bolt never shears.

Light, convenient, strong and versatile. Forged from high grade steel, and properly heat treated.

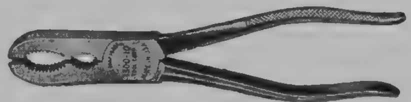
Capacity, 3/16 to 1⅛ inches. Length, 9½ inches.

Polished finish.

Packed 6 in a carton. Weight per dozen, 12½ pounds.

No. **410**..each **$3.20**

No. 1300 Utica Gas and Burner Pliers



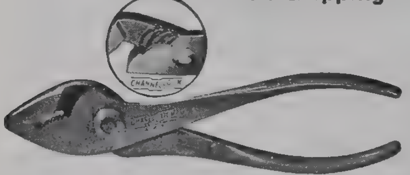
Drop forged steel with full fashioned handles.

Has larger capacity than ordinary plier of this type.

Length	inches	6	8	10
No. **1300**	each	**$2.35**	**2.50**	**3.26**
Weight per Dozen	pounds	4¼	8½	12½

No. 417 Champion DeArment Channellock General Utility Pliers

Self Gripping



Forged from high-grade steel and properly heat treated. Handles are deeply knurled to prevent slipping. Polished finish.

Channellock feature prevents joint bolt breaking by removing all strain from bolt. Jaws have many times the gripping power of ordinary pliers.

Capacity, ⅞ inch, round or square.

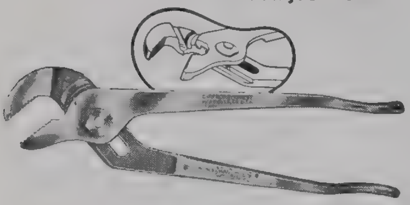
Length, 7 inches.

Packed ½ dozen per carton. Weight per dozen, 6¾ pounds.

No. **417**.......................................each **$2.30**

No. 420 Champion DeArment Channellock Pump Pliers

5 Adjustments



Interlocking channel prevents slipping under any load. The heavier the job, the greater the interlocking action.

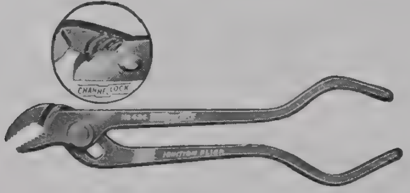
Wide base lugs provide maximum cross section strength, cannot shear. Nose design provides great utility for gripping small objects. Patented design of tension edge provides strength and eliminates stress concentration at channels. Interlocking design minimizes stress on joint bolt. Right-angle teeth guarantee maximum bite and minimum wear.

Cap., 1¾ in.; length 9½ in.; packed 6 in a carton.

No. **420**, Weight per Dozen, 9 Pounds...........each **$2.90**

No. 424 Champion DeArment Channellock Ignition Pliers

Self-Gripping



Forged from high grade steel and properly heat-treated.

Capacity, ½ inch.

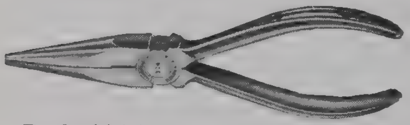
Channellock feature prevents joint bolt breaking by removing all strain from bolt.

Four adjustments. Length, 4½ inches. Polished finish.

Packed 6 to a carton. Weight per dozen, 1 pound.

No. **424**.......................................each **$2.00**

Champion DeArment Channellock Long Nose Pliers



Polished steel finish.

Knurled grips.

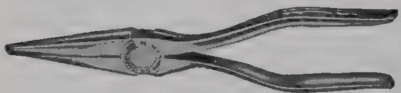
Length, 6 inches.

Packed ½ dozen per carton. Weight per dozen, 3¾ pounds.

No. **326**, with Wire Cutter.......................each **$3.00**

No. **3026**, without Wire Cutter..................each **2.35**

Champion DeArment Channellock Long Nose Pliers



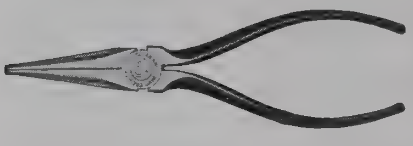
Polished steel finish. Knurled grips. Length, 7½ in.

Packed 6 in a carton. Weight per dozen, 5 pounds.

No. **317½**, with Wire Cutter....................each **$3.40**

No. **3017½**, without Wire Cutter................each **2.60**

No. 1033 Crestoloy Extra Long Nose Chain Pliers

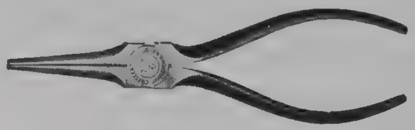


Individually tested. Polished head; gun metal handles. Packed one in a box.

Size, in. **6** 7

Each.. **$2.45** 2.70

No. 777 Crestoloy Long Needle Nose Pliers



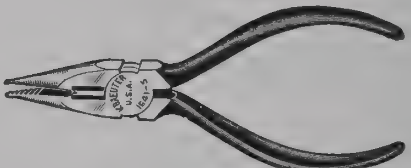
Good gripping ability. Of forged steel. Gun metal, with polished head. Packed 1 in a box.

6-Inch, Lgth. Overall, 6⅜ In.; Wt., 4 Oz........each **$2.80**

7-Inch, Lgth. Overall, 7$\frac{7}{16}$ In.; Wt., 5 Oz........each **3.15**

No. 1641 Kraeuter Short Chain Needle Nose Pliers

With Cutter



For skilled workman in manufacturing plants, mines, oil fields, railroads, utilities, etc.

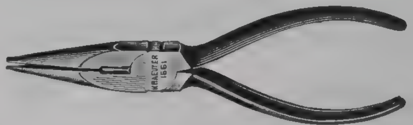
Length, 5 inches. Inside length of jaw 1$\frac{7}{16}$ inches, tapering to $\frac{1}{16}$-inch points.

Handle shaped to reduce wrist fatigue. Polished head, blue tempered handle. Milled jaws.

Packed 6 in a box. Weight per dozen, 2¾ pounds.

No. **1641**.......................................each **$2.60**

No. 1661 Kraeuter Industrial Long Chain Needle Nose Pliers



Used in electrical wiring, aviation, motor ignition and general manufacturing work.

Lap-joint. Long needle nose, tapered to point. Blue temper finish. With cutter, 1¾-inch jaw, $\frac{1}{16}$-inch point. Length, 6 inches.

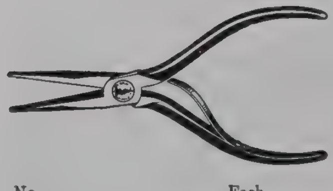
Packed 6 in a box.

Weight per dozen, 3¼ pounds.

No. **1661**.......................................each **$3.00**

Series 203 Klein's Long Nose Side Cutting Pliers

With Cutters



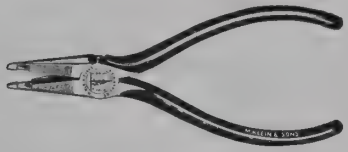
For radio and television work. Has ¼-inch cutters ¼ inch from point.

Knives are carefully fitted and body is hammer forged, hardened and tempered. Point $\frac{3}{32}$ inch round.

No.	Each	Size In.	Wt. Lb. per Doz.
203-5	$3.10	5	3¼
*203-5-L	3.45	5	3¼
203-6	3.25	6	3¾
*203-6-L	3.60	6	3¾
†203-7	3.40	7	4¼
*203-7L	3.75	7	4¼

*With leaf spring. Has extra long nose, 2¾ in. from center of hinge to point.

Series 301 Klein's Long Nose Pliers



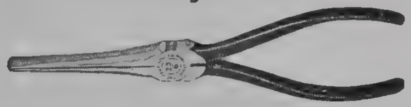
For radio and television work. Has ¼-inch cutters ¼ inch from point to allow cutting deep in confined places.

One knife has sharp edge, the other a flat surface to assure thorough cutting for long service.

No.	301-6-P	*301-6-PL
Each	**$4.00**	**$4.35**
Size . . . inches	6	6
Weight per Dozen . . . pounds	4	4

*With leaf spring.

No. 23 Crestoloy Duck Bill Pliers



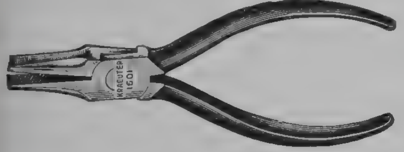
Extra long jaws; for weavers, jewelers, etc. Made of special steel. Gun metal handles; polished jaws.

Size, 7 inches. Individually boxed.

No. **23**; Weight, per Dozen, 3⅔ Pounds.........each **$3.00**

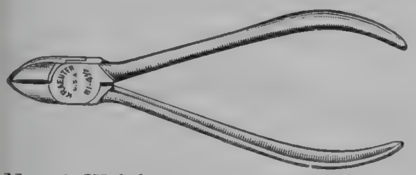
No. 1601 Kraeuter Short Flat Nose Pliers

Bench tool for light fine work. No cutter. Milled jaws. Handle blue tempered, shaped to reduce wrist fatigue. Polished head. Box, 6.



Lgth. In.	Each	Inside Jaw Lgth., In.	Wt. Lb. Doz.
4	**$2.00**	⅞	1½
5	**2.20**	1 3/16	2¼
6	**2.30**	1¼	3

No. 81 Kraeuter Jewelers' Diagonal Cutting Pliers

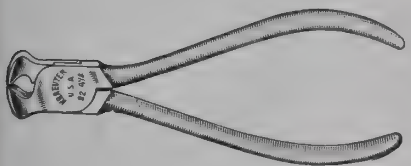


Size, 4½ in. For fine, close work. Full polished. Carefully edged cutting jaws.

No. **81**, Weight per Dozen, 1 Pound............each **$3.00**

No. 82 Kraeuter Jewelers' End Cutting Nippers

4½-Inch Size

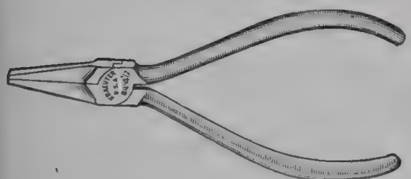


For fine close work. Carefully edged cutting jaws. Full polished. Wt. per dozen, 4½ lb.

No. **82**...each **$3.60**

No. 84 Kraeuter Jewelers' Flat Nose Pliers

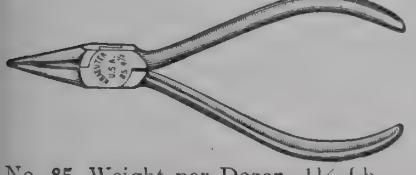
4½-Inch Size



Jaws ⅛-in. wide at point of nose. No cutter; 1 1/16-in. smoothjaw. Weight per dozen, 1½ lb.

No. **84**.each **$3.00**

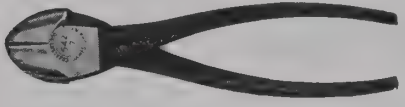
No. 85 Kraeuter Jewelers' Round Nose Round Jaw Pliers



Size, 4½ in.; 1 5/32-in. smooth jaw; 1/32-in. diameter at point of nose; no cutter.

No. **85**, Weight per Dozen, 1¼ Lb............each **$3.00**

No. 542 Crestoloy Diagonal Pliers

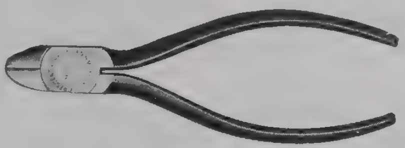


A powerful cutting pliers made of special crestoloy steel. Tested edges. Size, 7 inches.

Handles designed to give firm grip. Black finish with polished head. Packed 1 in a box; weight, 8 ounces.

No. **542**...each **$2.95**

No. 940 Crestoloy Short Nose Diagonal Cutting Pliers

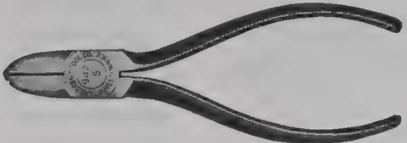


Tested for strength and ability. Size, 6 inches. Gun metal with polished head. Packed 1 in box; weight, 6 ounces.

No. **940**.each **$3.25**

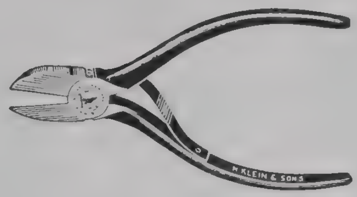
No. 942 Crestoloy Diagonal Cutting Pliers

Made of forged steel. Scientifically shaped knurled handles.



Size Inches	Each	Weight Oz.
4	**$2.30**	3
5	**2.65**	4
6	**3.10**	6

Series 202 Klein's Oblique Cutting Pliers

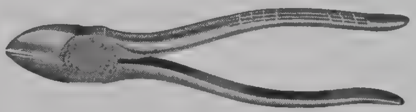


For radio, television, electrical and telephone work. Narrow head, with knives fitted for a close, clean cut.

No.	202-5	*202-5L	202-6	*202-6L
Each	**$3.00**	**3.35**	**3.15**	**3.50**
Size . . . inches	5	5	6	6
Wt. per doz . . . pounds	3¼	3¼	4	4

*With leaf spring.

Champion DeArment Channellock Diagonal Pliers



For auto and airplane mechanics.

Handles are deeply knurled and also shaped to assure a comfortable grip.

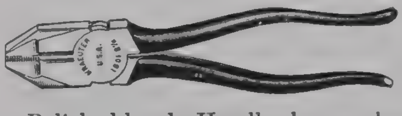
Forged from high grade steel and properly heat-treated.

Polished finish.

Packed ½ dozen per carton.

No.	435	436	437
Each	**$2.60**	**3.00**	**3.30**
Length . . . inches	5	6	7
Weight per Dozen . . . pounds	2¾	4½	6¼

No. 1801 Kraeuter Linemen's Side Cutting Pliers

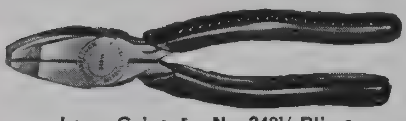


For linemen for high wire work, plant maintenance, etc.

Polished head. Handle shape reduces wrist fatigue.

Length . . . inches	**6**	**7**	**8½**
No. **1801**, Blue Temper Finish . . . each	**$3.00**	**3.50**	**4.40**
Wt. per Doz., Packed 6 in Box . . . pounds	5¼	7½	11¼

Champion Superior Plastic Grips



Large Grips, for No. 348½ Pliers

Tough, durable plastic; provides maximum handle-grip control.

Light blue color, makes pliers easy to locate. Easy to install, full instructions furnished with each pair. Packed 6 in a carton.

Small—For 6-Inch Channellock Pliers

For Nos. 326, 3026, 346, 366, 3066, 436 and 516 pliers.

Small Plastic Grips.........................per pair **$.65**

Medium—For 7-Inch Channellock Pliers

For Nos. 407, 417, 307, 317½, 3017½, 337, 347, 3047, 437, and 537 pliers.

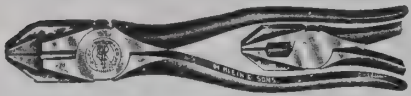
Medium Plastic Grips.......................per pair **$.70**

Large—For 8 and 9½-Inch Channellock Pliers

For Nos. 410, 420, 348½, 3048½, 568, 378, 3078.

Large Plastic Grips.........................per pair **$.75**

No. 201 Klein Side Cutting Pliers

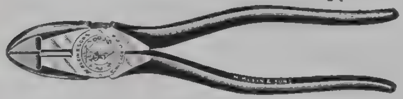


For use on bare and insulated wire. Curved handles. Powerful leverage and keen cutting knives.

No.........	201–5	201–6	201–7	201–8	201–9
No. **201**.each	$3.25	3.60	4.05	4.85	5.10
Size. .inches	5	6	7	8	9

No. 201 Klein Side Cutting Pliers

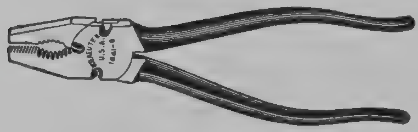
N. E. Type



Nose and all edges rounded and shoulder of head removed.

No.........	201-5NE	201-6NE	201-7NE	201-8NE	201-9NE
Each.......	$3.25	3.60	4.05	4.85	5.10
Size......in.	5	6	7	8	9
Wt., Doz.lb.	3	5¼	7¼	11¼	13½

No. 1841 Kraeuter Button's Pattern Pliers



Heavy duty general use pliers with powerful gripping capacity, for baling, binding and other heavy work.

Cutting notches, 3 wire.

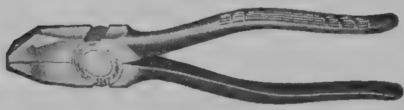
Polished head, blue tempered handle. Handle shape designed to reduce wrist fatigue to minimum.

Packed 6 in a box.

Length.................................inches	8	10
No. **1841**.................................each	$2.75	3.30
Weight per Dozen...................pounds	9	14

Champion DeArment Channellock Linemen's Pliers

Bevel Nose—Side Cutter



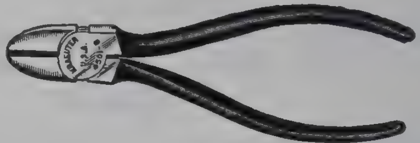
Forged from high grade steel and properly heat-treated.

Polished steel finish. Knurled grips.

Packed ½ dozen per carton.

No................................	3046	3047	3048½
Each................................	$2.90	3.40	4.00
Length........................inches	6	7	8½
Weight per Dozen............pounds	5	7	10¾

No. 4501 Kraeuter Industrial Diagonal Oblique Cutting Pliers



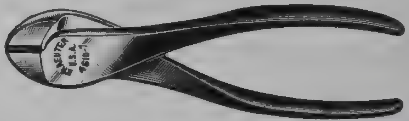
Made especially for close cutting. Used in electrical work, radio manufacturing, telephone and automotive ignition work.

Forged from special plier steel; blue temper finish.

Packed 6 in a box.

Length..............................inches	4½	5	6
No. **4501**................................each	$2.35	2.65	3.00
Weight per Dozen................pounds	1½	2¾	3¾

No. 4610 Kraeuter Industriai Diagonal Cutting Pliers



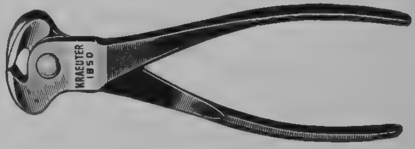
For powerful diagonal cutting work. Cutting edges designed to cut heavy wire. Extra heavy and jointed very close to end to give added leverage which makes cutting easy.

Made of forged steel, blue temper finish.

Packed 6 in a box.

Length.................................inches	5	7
No. **4610**.................................each	$2.60	3.00
Weight per Dozen....................pounds	2¼	5¾

No. 1850 Kraeuter Industrial End Cutting Nippers



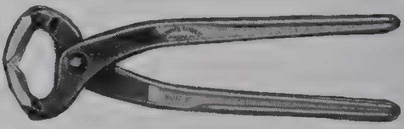
Forged from high grade tool steel. Compact jaws and close riveted joint.

Blue temper finish.

Packed 6 in a box.

Length....................inches	5	6	7	8
No. **1850**......................each	$2.50	2.90	3.30	3.75
Weight per Dozen.........pounds	4	6	8	10½

No. 167 Champion DeArment Carpenter's Pulling Pincers



Drop forged from special analysis steel. Designed with extra wide jaws and T handles for maximum hand comfort.

Full polished head, painted handles and hand filed cutting edges. An extra large rivet with large head gives long life.

Length, 8 inches.

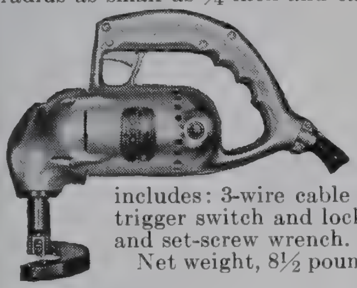
Packed ½ dozen in carton.

Weight per dozen, 10½ pounds.

No. **167**....................................each **$1.90**

No. 259 16-Gage Black & Decker Portable Electric Porto-Shears

Universal Motor, A.C. or D.C.—For 115 or 220 Volts



Will cut all types of sheet metal quickly. Will cut on a radius as small as ¾-inch and easily follows a straight or curved, irregular line because cutting blade is always visible.

Strokes per minute: no load, 2500; full load, 1650. Overall length, 12⅛ inch.

Standard Equipment includes: 3-wire cable and plug, instant-release trigger switch and locking pin, set shear blade, and set-screw wrench.

Net weight, 8½ pounds; ship. wt., 11 lb.

Cat. No. **259**, Specify Voltage.................each **$95.00**

No. 2 Whitney Close Corner Punches

Capacity 9/32-Inch Hole Through ¼-Inch Iron

Length, 23 inches. Throat depth, 1 11/16 inches. Stock sizes of punches, ⅛ inch to 9/32 inch by 1/32 inch. Drop-forged high grade alloy steel with wearing parts heat treated. Extra punches and dies of A-1 grade tool steel, heat-treated and tempered.

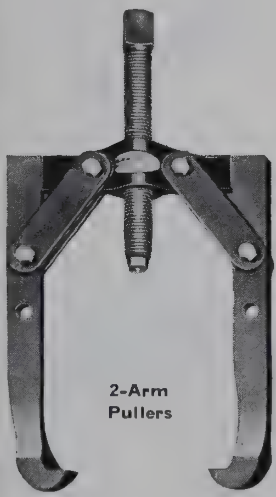
Also made in squares and ovals to order; largest size square, ¼ inch square.

By machining away part of jaw and using 9/16-inch diameter die, holes can be punched within ½ inch of inside corner of angle iron and in center of web of 1-inch channel iron.

Weight, 14 pounds.

No. **2**, with Punch, Die, Die Adjusting Key....each **$22.65**
Extra punches or dies, $.58 each.

Armstrong-Bray Steelgrip Gear and Wheel Pullers



2-Arm Pullers

Will pull anything up to the rated capacity and within their arms' reach. Designed so that hooks cannot slip off.

Arms and yokes are forged steel.

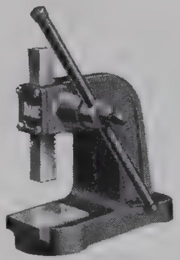
The 3-arm is a rigid puller for use on gears, wheels, pinions, generators, etc., when a 2-arm puller is not practical. Arms are interchangeable on the 2 and 3-arm series.

Number of hole adjustments: Nos. 1001, 1002, 1031, 1032, 1; Nos. 1001A, 1003, 1003½, 1004, 1031A, 1033, 1033½, 1034, 2; 1002A, 1003A, 1003½A, 1004A, 1032A, 1033A, 1033½A, 1034A, 3.

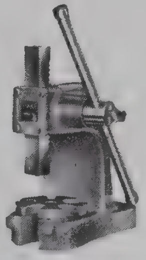
2-Arm Pullers			3-Arm Pullers							
No.	Each	Wt. Lb.	No.	Each	Wt. Lb.	Diam. In.	Max. Reach In.	Diam. Screw In.	Lgth. Screw In.	Approx. Test Load Lb.
*1001	**$9.00**	1.75	*1031	**$13.15**	2.9	6	3¼	9/16	6	10000
1001A	**10.65**	2.4	1031A	**16.45**	3.4	8	5½	9/16	6	10000
*1002	**17.55**	4.7	*1032	**23.30**	6.4	8	5½	11/16	9	18000
1002A	**19.75**	5.5	1032A	**26.85**	7.9	10	8½	11/16	9	18000
1003	**27.25**	10.4	1033	**37.35**	14.3	12	10	13/16	12	30000
1003A	**31.75**	12.75	1033A	**42.10**	18.3	14	15	13/16	12	30000
1003½	**40.45**	25.0	1033½	**54.95**	33.0	14	14	1¼	17½	†44000
1003½A	**47.60**	27.0	1033½A	**67.10**	36.6	16	18	1¼	17½	†44000
1004	**55.55**	42.3	1034	**71.45**	57.3	18	15½	1¼	17½	56000
1004A	**62.60**	48.0	1034A	**85.60**	68.6	20	22	1¼	17½	56000

*Reversible arm type.
†Approx. test load sizes 1033, 1033A, 44000 pounds.

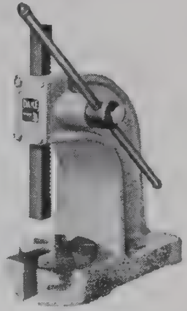
Dake Single Leverage Arbor Presses



No. X



No. 00

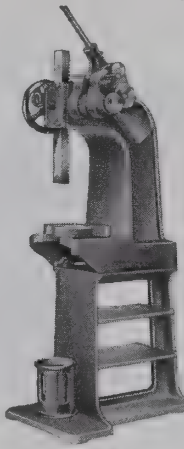


No. 0

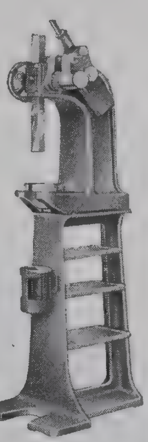
Designed for light production and assembly work. Most models have a large opening in base for arbor work, and slotted tableplate. Nos. X and Y have solid square table. Pedestal available for all models except Nos. 00 and X.

No.		X	Y	00	0	1
Less Pedestal	each	**$26.00**	**$52.00**	**$26.00**	**$52.00**	**$66.00**
Pedestal Only	each	.....	**47.00**	.....	**47.00**	**58.00**
Approx. Capacity	tons	1	1½	1	1½	3
Max. Work Diam.	inches	7	9	7	9	14
Max. Work, Arbor	inches	.....	.....	1	1	2
Capacity: Over Table	in.	4½	7¾	5	7¾	11½
Over Tableplate	in.	.....	.....	4½	7⅛	10¾
Leverage Ratio		25–1	32–1	25–1	32–1	36–1

Dake Compound Leverage Arbor Presses



No. 3



No. 2

No. 2½

No. 5

For shops having heavier classes of press work; high leverages.

By inserting or extracting a sliding pin, press quickly changed from simple to compound leverage or vice versa.

Nos. 2, 2B, 2½, 3—bench type, available with floor pedestals; fixed machined table surfaces for work support.

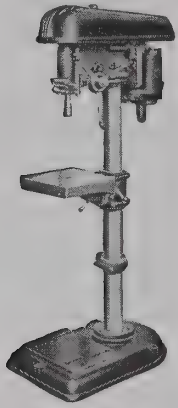
Nos. 4, 5, 6—heavy duty floor type; No. 4 has table with rack and pinion adjustment; Nos. 5 and 6 have swinging table for various heights.

No.	Less Pedestal Each	Pedestal Only Each	Approx. Cap. Tons	Max. Work—Inches Diam.	Max. Work—Inches Arbor	Cap., In. Over Table	Cap., In. Over Table-Plate	Leverage Ratio
2	**$225.00**	**$80.00**	6	15½	3	15	13¾	66–1
2½	**235.00**	**80.00**	6	15½	3	21½	20¼	66–1
3	**350.00**	**130.00**	12	20	5¼	19	17¼	112–1
4	**595.00**	......	12	20	5¼	26	24½	112–1
5	**700.00**	......	15	24½	5½	46	30, 16	150–1
6	**1000.00**	......	25	37	8	47	31½,16½	220–1

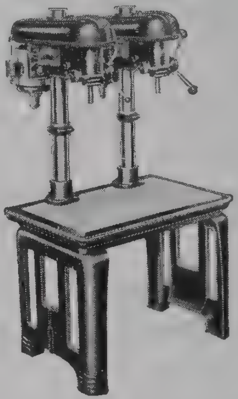
Delta Tools for Industry

Metal—Woodworking

For some classes of production DELTA TOOLS will serve every need. In many instances they are being used to relieve or supplement larger types of machines.

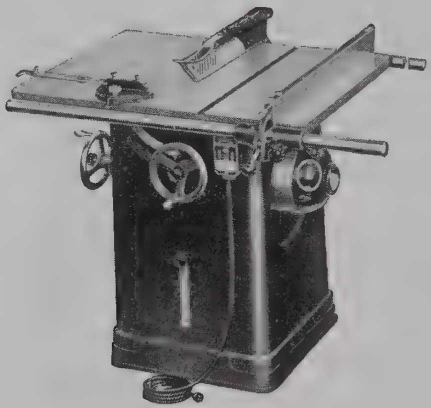


17-Inch Single Spindle Drill Press

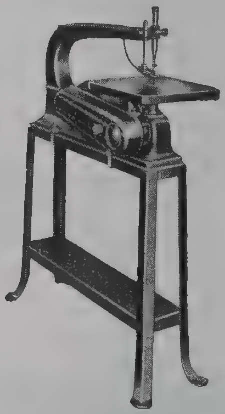


17-Inch 2-Spindle Drill Press

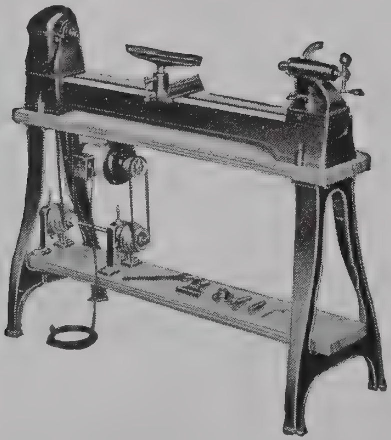
14-Inch Wood Band Saw



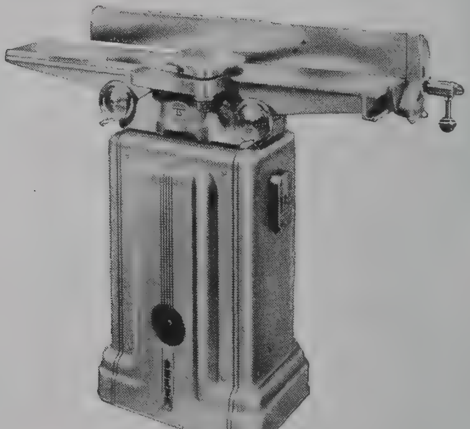
10-Inch Tilting Arbor Saw



24-Inch Floor Model Scroll Saw



12-Inch, 16-Speed Floor Model Lathe

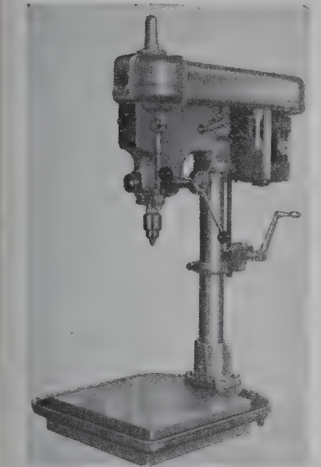


6-Inch Floor Model Jointer

Ask for a DELTA CATALOG which shows the complete line available and which gives detailed information.

W-T 15-Inch Drill Presses

Floor Model—Motor Driven



Table, 10x12½ inches. Tilting table optional. No. 6A Jacobs chuck, 0 to ½-inch capacity. No. 1 Morse taper available. Has four ball bearings, two on a spindle and two on a pulley. Base, 11x9 inches. Six spline spindle, ⅝-inch diameter. No. 33 taper for No. 6A Jacobs chuck or No. 1 Morse taper spindle. Spindle travel, 6 inches. Built-in push-button motor switch, belt guard, belt, motor pulley included. Column, finely ground finish, 2¾-inch diameter. Quill, machined from solid bar. Rack teeth milled in quill, 1 13/16 inches in diameter.

One-piece gray iron head. Wedge type column lock.

Speeds: 4 speeds, 600, 1250, 2240, and 5000 rpm. with 1740 rpm. motor and standard head pulley; 480, 940, 1300, and 2900 rpm. with slow speed head pulley.

Range, 7½-inch column to center line of spindle.

Chuck to base, 43 inches; chuck to table, 37⅝ inches.

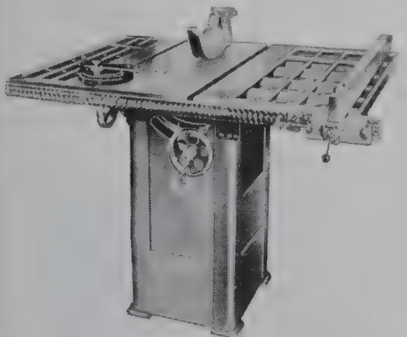
Shipping weight, without motor, 195 pounds.

No. **1316-42**, DeLuxe, Standard Speed Pulley, ½-Inch Key Chuck, Utility Table	each	**$160.00**
No. **1311-42**, Same as No. 1316-42, with No. 1 Morse Taper Spindle	each	**160.00**
No. **1326-42**, Same as No. 1316-42, with Slow Speed Pulley	each	**180.00**
No. **1321-42**, Same as No. 1316-42, with No. 1 Morse Taper Spindle and Slow Speed Pulley	each	**180.00**
No. **1316-41**, DeLuxe, Standard Speed Pulley, ½-Inch Key Chuck, Production Table	each	**182.00**
No. **1311-41**, Same as No. 1316-41, with No. 1 Morse Taper Spindle	each	**182.00**
No. **1326-41**, Same as No. 1316-41, with Slow Speed Pulley	each	**184.00**
No. **1321-41**, Same as No. 1316-41, with No. 1 Morse Taper Spindle and Slow Speed Pulley	each	**184.00**

Nos. 1316-61, 1311-61, 1326-61 and 1321-61 Series also available, complete information on request.

W-T 10-Inch Tilting Arbor Saws

CAPACITY: Cuts 3⅛-inch deep with 10-inch blade, 2⅛-inch material at 45 degrees; 6-inch dado head cuts 1⅛-inch deep. Saw arbor, ⅝-inch Acme left-hand thread, takes up to 1-inch wide dado. Spindle speed, 3800 rpm.



Cast iron table, 26¾-inch wide, 32½-inch deep with front extension; 44¾-inch wide with side extension.

Front of table to blade, 18 inches.

Tilting mechanism handwheel swings entire arbor and drive unit; stops at 45 and 90°, with a lever lock.

Removable safety guard, splitter and two anti-kick back pawls. Cast aluminum fence, one lever locking device locks front and rear; spring loaded support bracket. Self-indexing mitre gage, ⅜x¾-inch tongue.

Two dust sealed ball bearings. Triple V-belt drive.

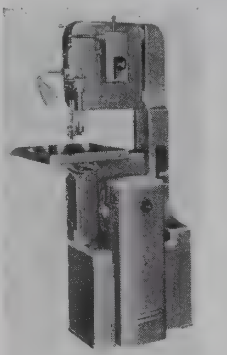
Height, 41 inches; width, 49⅞ inches; depth, 38¾ inches.

Weight: machine only, 265 pounds; motor, 40 pounds.

No. **2211**, with Guard and Splitter, Mitre Gage and 10-Inch Combination Blade, less Motor and Side Extension Tables	each	**$271.00**
No. **2221**, as Shown, with Guard and Splitter, Side Extension Tables, Mitre Gage and 10-Inch Combination Blade, less Motor	each	**217.00**
No. **22C93**, Side Extension Table	each	**27.50**
No. **22C17**, Dado Inserts	each	**5.00**
No. **9143-4**, 1-Hp., 3450-RPM., 115/230-Volt. 60 Cy., 1-Phase, A.C. Motor w/Overload Switch	each	**72.50**
No. **9343**, 1-Hp., 3450-RPM., 220/440-Volt, 60-Cy., 3-Phase, A.C. Motor, less Switch	each	**70.25**
No. **395C3**, Push-Button Switch	each	**8.00**

No. 3331 W-T Variable Speed 16-Inch Band Saws

Capacity: Blade to frame, 16 in.; upper guide to table, maximum, 8 in. Three-unit construction. Blade speeds from 50 to 4500 sfm. with 1140-rpm. motor. Gray iron table, 18x19 in.; 1 mitre gage slot, ¾x⅜ in.; tilts 45° to right and 5° left. Upper and lower guides have ball bearing thrust rollers with multiple leaf double-contact guides. Blade adjustment; tension control. Hinged cast aluminum guards cover both wheels; telescoping guard covers blades between upper guard and guide. Dynamically balanced 16-in. wheels and Jiffy tires.

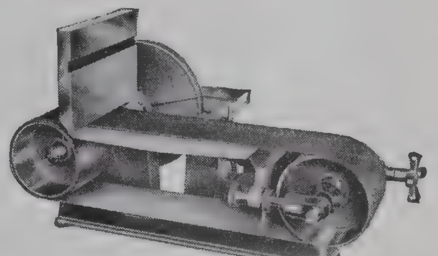


B-section V-belt drive; belt width, ⅝ in. Overall height on base, 68⅜ in.; width, 35⅝ in., depth, 30½ in.

Shipping weight, 700 pounds; motor only, 75 pounds.

No. **3331**, Complete with ½-Inch-18 Tooth Blade, Belt, Motor Pulley, Light, Carriage Bar, Motor Switch, Belt Guard and Base; less Motor	each	**$586.50**
No. **33C172**, Weld Unit; 110 Volts, Specify 25, 50 or 60 Cycles; less Bracket	each	**189.50**
No. **33C79**, Welding Unit Bracket Only	each	**14.30**
No. **32C91**, Hand Feed Attachment	each	**21.45**
No. **424-32**, 10-Tooth, ½" Blade, 111½" Long	each	**2.85**
No. **424-33**, 14-Tooth, ½" Blade, 111½" Long	each	**2.85**
No. **424-34**, 18-Tooth, ½" Blade, 111½" Long	each	**2.85**
No. **391C90**, Mitre Gage	each	**14.30**
No. **9131**, Motor; ¾ Hp., 1140 RPM., 115/230 Volts, Single Phase	each	**102.50**
No. **9331**, Motor; ¾ Hp., 1140 RPM., 220/440 Volts, 3 Phase	each	**83.50**

No. 5510 W-T Belt and Disc Surfacers



Through use of 390A1 steel stand, it is possible to do stroke surfacing on large panels up to 12-inch width and 4 to 5-foot length. Shelf is adjustable up and down, 14 inches, permitting wood up to that thickness to be sanded.

Belt is aluminous oxide, fabric backed. Regular equipment, 60 grit. Belt is 4x52½ inches. Belt speeds: 1050, 1760 and 3100 fpm.

Cast iron sanding disc is 10 inches in diameter. Abrasive is aluminous oxide; 60-grit abrasive discs.

Hinged tilting table for disc. Cast iron with smooth ground surface 12x6 inches. Tilts from 90° to 45° with angle of tilt indicated on graduated quadrant.

Sanding table is 12x4¼ inches. It is attached to and adjusts on base. Carries a stop table 8½x6 inches which tilt 90° to 45° with indicator and graduated collar.

Pulleys are aluminum die castings 5 inches in diameter. Drive pulley is slightly crowned. Distance between centers of pulleys, 18 inches.

Machine speeds: 660, 1280, and 2350 rpm. Motor recommended, for ordinary work, ⅓ hp. 1740 rpm.; for heavy work, ½ hp. 1740 rpm.

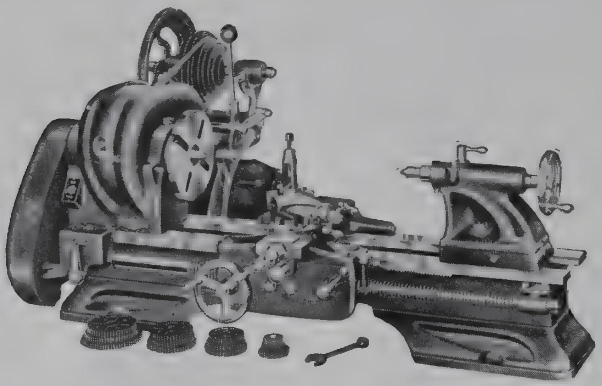
Overall length, 29 inches; overall height, 16 inches.

Shipping weight, 98 pounds.

No. **5510**, without Motor; with Motor Pulley, V Belt, Hand Block, and Mitre Gage	each	**$91.50**

TH Series Atlas 10-Inch Backgeared Screw Cutting Lathes

With Horizontal Countershaft—Bench Type—Motor Driven



For use in the production line and toolroom. Has accuracy for the finest tool work, strength and power for heavy jobs, rugged materials and large bearing surfaces for long service life under continuous production schedules.

Capacity. Swing over bed, 10 inches. Swing over carriage, 5⅞ inches. Threading range, 4 to 96 standard, right or left hand; metric, .5 to 7 mm. Collet capacity, ½ inch.

Speeds and Feeds. Number of spindle speeds, 16 (8 direct, 8 backgeared). Speeds, 28, 45, 70, 83, 112, 134, 164, 211, 266, 345, 418, 500, 685, 805, 1270 and 2072 rpm. Feeds, left or right, inches per revolution of spindle, .0104, .0087, .0070, .0060, .0050, .0035 or .001877. Lead screw, ¾ inch in diameter, and 8 Acme threads per inch.

Headstock. Spindle nose, 1½ inches in diameter, 8 pitch National Form threads. Spindle nose taper, bored for No. 3 Morse taper with reducing sleeve to take No. 2 Morse taper. Hole through spindle, 25/32 inch. Back gears, 12 pitch, ⅞ inch wide. Backgear ratio, 6 to 1. Spindle gear, 16 pitch, 32 teeth, and ⅞ inch wide.

Carriage. Cross feed travel, 6½ in. Cross feed screw, ½ in. diam., Acme, threads. Tool post slide travel, 2¼ in.

Tailstock. Tailstock ram, 1⅛ inches in diameter, bored for No. 2 Morse taper. Tailstock ram travel, 2¾ inches. Tailstock ram graduations, 0 to 3 inches, by 1/16ths. Tailstock set-over, forward or back, ¾ inch.

Drive unit. Motor recommended, ⅓ or ½ hp., 1725 rpm., mounted on adjustable base. Hole through motor pulley, ⅝ inch in diameter. V-belt for complete drive.

Equipment. Reversible automatic power cross feed and longitudinal feed; graduated compound rest; tool post, ring and rocker; change gears to cut standard threads from 4 to 96 per inch and standard metric threads from .5 to 7 mm.; threading chart and dial; quick-change countershaft with motor mounting bracket; complete V-belt drive; motor pulley; 60-hole indexing mechanism; 6-inch face plate; two 60° lathe centers; reducing sleeve for headstock center; wrench; and instruction book.

Specifications and Prices

Timken Equipped

No.	TH42	TH54
Each	**$286.00**	**320.00**
Length Bed ... inches	42	54
Overall Length ... inches	46	58
Between Centers ... inches	24	36
Ship. Weight ... pounds	275	298

Motor Recommendations

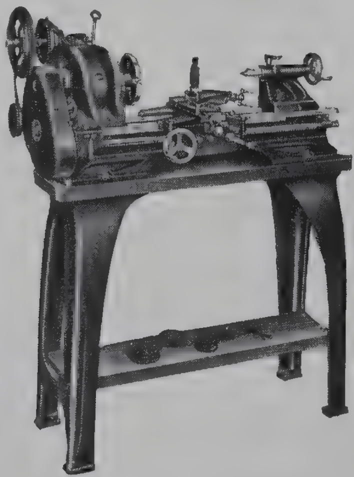
Ball Bearings—60 Cycles—1725 RPM

For average duty, use No. 2730 or No. 2831 motor. For heavy duty, use No. 2720 or No. 2821 motor.

Single-end shaft, ⅝ inch.

	2730	2720	2821	2831
Each	**$40.50**	**47.90**	**46.00**	**38.45**
Hp.	⅓	½	½	⅓
Volts	115/230	115/230	115/230	115/230
No. of Phases	1	1	3	3
Ship. Wt. ... pounds	37	38	35	28

Atlas Floor Stands



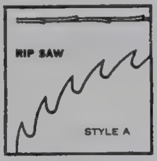
For 10-Inch Lathes, Horizontal Countershaft

No.	10F-442B	10F-442D
Each	**$58.85**	**63.25**
For Bed Length ... inches	42	54
Shipping Weight ... pounds	135	140

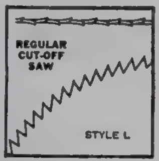
Floor Legs Only

No. **10F-441**—Shipping Weight per Set, 105 Lb. ... per set of 4 **$43.75**

Simonds Si-Clone Round Center Hole Saws



Rip



Regular Cutoff

Diam. In.	Gage	Cutoff — Tooth Style C, L Flooring	Cutoff — Tooth Style L Reg.	Cutoff — Tooth Style L Fine	Rip Tooth Style A	Each
4½	19	..	50	...	36	$1.75
5	18	60	100	150	..	1.75
5⅞	18	60	100	150	30	1.75
6	18	30, 60	100, 120	150	36	1.75
6⅛	17	..	...	...	..	1.75
6⅛	18	80	100	...	..	1.75
6¼	18	60	100	150	36	1.75
6⅜	18	60	100	150	36	1.75
6½	18	80	100	...	36	2.00
7	16	..	...	...	..	2.00
7	18	30, 70	100	200	36	2.00
7¼	20	..	...	200	..	2.00
7¼	17	30, 70	100	...	30, 36	2.00
7⅜	17	80	100	...	..	2.00
7½	17	70	100	200	36	2.15
8	16	..	100, 150	...	36	2.15
8	17	80	100	200	36	2.15
8⅛	17	80	100	...	..	2.15
8¼	17	80	100	200	30, 36	2.15
8½	17	30	100	200	36	2.65
8 15/16	16	80	100	...	30	2.65
8 15/16	19	..	...	200	..	2.65
9	16	80	100	200	36	2.65
9¼	16	90	100	...	..	2.65
9½	16	90	100	...	36	3.15
9⅝	16	..	100	...	36	3.15
9⅞	16	90	100	200	36	3.15
10	16	80, 90	100, 150	...	36	3.15
10¼	16	..	...	...	36	3.15
11⅞	14	..	100	...	36	4.35
12	14	80	70, 100, 150	200	24, 30, 36	4.35

Simonds Red Center Groovers or Dado Heads

Assembled Dado Head

Each outside cutter is a groover in itself. A single cutter will cut grooves ⅛ inch wide and 2 cutters will cut grooves ¼ inch wide.

By using inside cutters, grooves measurable by 16ths can be obtained beyond the ⅛ and ¼-inch cuts made by the outside cutters.

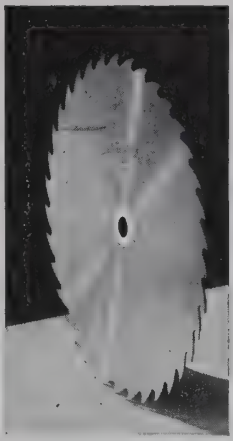
Dado heads are arranged in sets each containing two outside saws and one 1/16-inch filler.

Minimum cutting capacity, ⅛ inch. Special sets made up to cut from 4 to 8 inches wide. Standard sets arranged as follows:

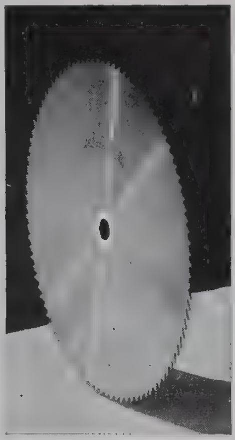
No. of Set	1	2	3	4	5	6	7	8
Max. Cutting Capac.......in.	7/16	11/16	13/16	1 1/16	1 9/16	2 1/16	3 1/16	4 1/16
No. of Fillers: 1/16 In.	1	1	1	1	1	1	1	1
⅛ In.	1	1	2	2	2	2	2	2
¼ In.	..	1	1	2	4	6	10	14

Simonds Red Center Circular Saws

For Wood—Rip and Cut-Off



Rip

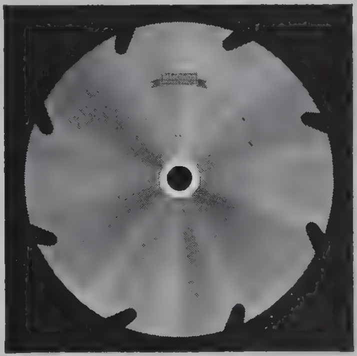


Cut-Off

Heat-treated, precision ground, accurately fitted hook to take faster feeds easier.

Diam. In.	Gage	Number of Teeth — Rip Saws A Tooth	Number of Teeth — Cut-Off Saws L Tooth	Each
4	19	40	88	$2.48
5	18	.....	100	2.48
6	18	36	100–120	2.48
6½	18	36	....	2.75
7	18	36	100–110	2.75
7½	18	40	100	2.92
8	18	36	100–150	2.92
9	16	36	....	3.47
10	16	30–36	100–150	4.02
12	14	30–36	70–100–150	5.34

Simonds Easy-Cut Saws



Designed to operate with only 8 or 12 teeth to the saw instead of the usual 36 to 100 teeth. Takes less power to run because small number of teeth and limited maximum depth of cut requires less power and there is considerably less friction, drag and gumming. Minimizes kickback tendency and greatly reduces grabbing action, due to special tooth design. Operates with less noise as a result of chip-cutting action of novel tooth design and smaller number of cutting teeth. Has fewer teeth to sharpen. Best suited for ripping, this saw can also be used for rough cut-off and combination work on either table type or radial arm machines.

Solid Tooth—Rip or Cut-Off

For Hand Feed Only

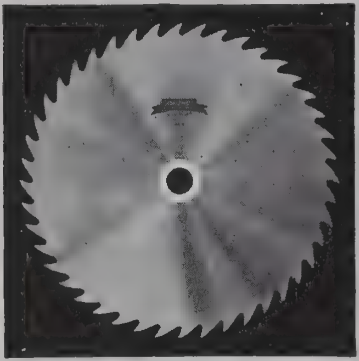
Teeth furnished set and filed straight across on face and top unless otherwise specified.

The continued successful performance of this saw depends upon keeping the saw sharp and maintaining the proper .020-inch top clearance.

Diam. In.	Gage No.	8-Teeth Each	12-Teeth Each	Diam. In.	Gage No.	8-Teeth Each	12-Teeth Each
6	18	$2.75	$3.05	10	16	$4.45	$5.00
7	16	3.05	3.42	12	14	5.92	6.71
8	16	3.23	3.66	14	13	14.01	16.10
9	16	3.84	4.33	16	12	18.13	20.85

No. 60 Simonds Flat Ground Combination Saws

For Wood



For use on electric handsaw machines, on home workshop machines and also on saw tables used in construction projects.

Set and filed teeth are beveled to cut with and across the grain.

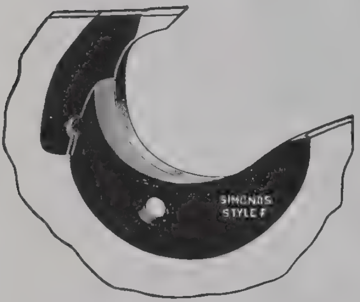
In ordering, give diameter, gage and size hole. Also available made to order, in other gages and diameters than listed; information on request.

Diameter..in.	6	7	7½	8	9	10	12
Each........	$2.48	2.75	2.92	2.92	3.47	4.02	5.34
Gage........	18	18	18	18	16	16	14
No. of Teeth.	44	44	44	44	44	44	40–44
Hole Size..in.	½	½	⅝	½	½ & ⅝	⅝	1

Simonds Red Center Planer Saws

Works successfully in soft or hard wood, whether ripping, cutting off or mitering. Fast hand feeding without rubbing or overheating. Standard gages, with 4 cutting teeth and a raker to each section.

Size, In.	Each
6	$4.02
7	4.54
8	5.81
9	9.86
10	9.86
12	13.02
14	21.78
16	26.40
18	31.50
20	37.66
22	43.74
24	48.93



Simonds Bits and Shanks

For Inserted Tooth Saws

When ordering, specify pattern, gage and width of kerf or cutting edge.

Packed 100 in a box.

Bits

Styles B, and Nos. 2, 2½, 3, 3½, 4½ and 5

		Less than 5/16-In. Kerf	5/16-In. Kerf and Wider
Regular Type................	per 100	$11.10	$11.89
Stand-All Type..............	per 100	12.20	12.99
Tungsweld: Regular..........	per 100	40.00	40.00
Stand-All.........	per 100	45.00	45.00
High Speed Steel..............	per 100	***44.06***	***44.06***
Roscer Type.................	per 100	.....	27.53

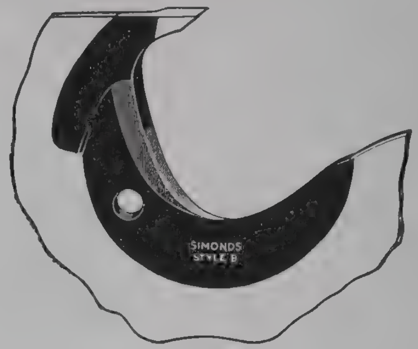
For hog bits add 25 per cent to above prices.

Shanks

		Regular	Tungsweld
Styles B, F, Nos. 2, 2½, 3, 3½, 4 and 4½..........	each	$.95	$1.85
Styles D and No. 5............	each	1.05	1.85

Simonds Inserted Tooth Saws

For Wood



Style B

Style B. Has a large open gullet making it ideal for light power and frozen timber or in very large logs.

Strong shoulder with bit solidly held in line with plate.

Style F. For fine tooth saws. Will take a fast feed, is light pulling and a good frozen timber saw. Will take a faster feed than Style B. Does not require oversize shanks.

Style D. For general work in the largest sizes of saws.

No. 2½. For fine tooth saws. Has bit and shank on the same circle in the plate. Has plenty of throat room to handle sawdust.

No. 3. For general use. Has bit and shank on same circle. For use in either hardwood or soft wood.

		No. 2½			Styles B, F, D and No. 3		
Diameter Inches	Rim Gage	Each	Extra For Each Gage Heavier	For Beveling New Saws Per Gage	Each	Extra For Each Gage Heavier	For Beveling New Saws Per Gage
12	11	$43.92	$ .40	$ .76	$46.12	$ .42	$ .80
14	10	50.80	.56	.88	53.34	.59	.92
16	10	59.04	.68	1.04	56.20	.71	1.09
18	10	67.28	.84	1.24	63.42	.88	1.30
20	9	75.52	1.04	1.44	72.07	1.09	1.51
22	9	83.76	1.24	1.64	80.72	1.30	1.72
24	9	93.36	1.44	1.84	89.38	1.51	1.93
26	9	102.96	1.72	2.12	98.03	1.81	2.23
28	9	112.56	2.04	2.40	106.68	2.14	2.52
30	9	123.52	2.40	2.68	115.33	2.52	2.81
32	8	137.28	2.76	2.96	126.84	2.90	3.11
34	8	151.04	3.08	3.24	139.86	3.23	3.40
36	8	164.72	3.56	3.52	152.80	3.74	3.70
38	8	178.48	4.12	3.80	165.73	4.33	3.99
40	8	192.16	4.68	4.04	180.18	4.91	4.24
42	8	205.92	5.20	4.48	197.48	5.46	4.70
44	8	226.48	6.04	4.88	216.22	6.34	5.12
46	8	247.12	7.08	5.28	237.80	7.43	5.54
48	8	274.56	8.08	5.72	259.48	8.48	6.01
50	8	302.00	9.12	6.12	288.29	9.58	6.43
52	7	336.32	10.16	6.60	317.10	10.67	6.93
54	7	377.52	12.08	7.08	360.36	12.68	7.43
56	7	425.60	14.08	7.56	403.62	14.78	7.94
58	7	466.72	16.12	8.16	446.88	16.93	8.57
60	7	514.80	18.20	8.80	490.06	19.11	9.24
62	6	576.56	20.24	9.40	547.76	21.25	9.87
64	6	645.20	24.16	10.08	612.61	25.37	10.58
66	6	713.84	30.20	10.76	677.46	31.71	11.30
68	6	789.36	36.24	11.60	749.53	38.05	12.18
70	6	864.88	42.28	12.44	821.60	44.39	13.06
72	6	940.40	48.32	13.24	893.68	50.74	13.90

No extra bits or shanks are given with inserted point saws.

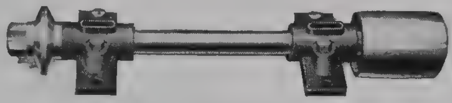
No extra charge will be made for saws one gage thicker on the rim than list.

No extra charge for saws one to three gages thinner than list. When more than three gages thinner, add 5 per cent to list for each gage.

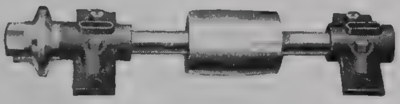
Saws 42 inches or less in diameter beveled one gage without extra charge.

Saws 44 inches or larger beveled two gages without extra charge.

Clizbe Circular Saw Mandrels



Pulley at End



Pulley in Center

Latest improved pattern, made from high grade, cold drawn steel shafting and best quality grey iron castings.

Boxes are filled with good babbitt metal, most suitable for this purpose, and are parted for taking up wear. Set collar to take up end play.

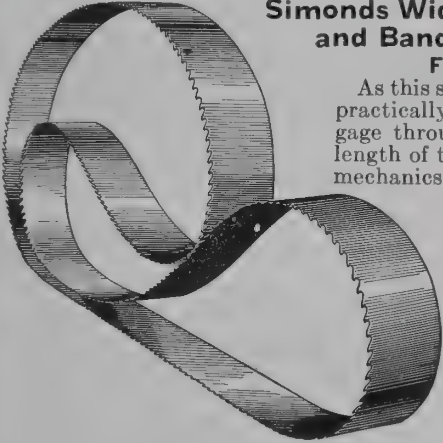
The plain mandrels are made with the pulley on the right hand side, when saw is running towards operator, with left-hand thread, unless otherwise ordered.

When ordering, specify pulley, center or end, and left-hand or right-hand thread. Pulley on end or in center at same price.

No.	Each	Diam. Pulley Inches	Pulley Face Inches	Diam. Flange Inches	Length Shaft Inches	Diam. Shaft Inches	Size Hole in Saw Inches	Approx. Ship. Weight Pounds
00	$6.50	2	3	2	16	3/4	1/2	9
0	7.30	2	3	3½	16	7/8	3/4	14
1	9.20	2½	3½	3½	16	1 1/16	1	12
2	10.90	3	4	3½	19	1 3/16	1 1/8	25
3	13.00	3½	4½	4	21	1 5/16	1¼	31
4	16.80	4	5	4	24	1 7/16	1 5/16	37
5	18.40	4½	5½	4	26	1 7/16	1 5/16	40
6	20.30	5	6	5	28	1 7/16	1 3/8	44
7	22.10	5½	6½	5	30	1 7/16	1 3/8	51
8	24.00	6	7	5	32	1 9/16	1½	64

Simonds Wide Band Saws and Band Re-Saws

For Wood



As this saw is ground with practically no variation in gage throughout the entire length of the saw, filers and mechanics will readily appreciate that with this accuracy of manufacture the saw can be kept in such condition that the strain will be divided equally throughout the saw, and consequently add life, durability.

Width In.	Base Gage	Single Cut per Ft.	Width In.	Base Gage	Single Cut per Ft.	Sliver Tooth per Ft.	Double Cut per Ft.
2	18, 19, 20	$1.28	9	14, 15, 16	$5.64	$5.92	$6.20
3	18, 19, 20	1.84	10	14, 15, 16	6.28	6.60	6.92
3½	18, 19, 20	2.08	11	14, 15, 16	7.08	7.44	7.80
4	17, 18, 19	2.60	12	13, 14, 15	7.88	8.28	8.64
4½	17, 18, 19	2.88	13	13, 14, 15	9.44	9.92	10.40
5	17, 18, 19	3.12	14	13, 14, 15	11.04	11.60	12.12
6	17, 18, 19	3.92	15	12, 13, 14	13.40	14.08	14.72
7	16, 17, 18	4.44	16	12, 13, 14	15.76	16.56	17.32
8	14, 15, 16	4.96	..	....	.....	.....	.....

Saws of odd widths not listed take price of next wider size listed. For saws of heavier gage than listed, add 5 per cent to base price for each gage heavier. No extra charge for saws one or two gauges thinner than list. When more than two gages thinner, add 5 per cent for each gage. With round holes or perforations, add 10 per cent.

Double edge band saws, add 10 per cent to base price.

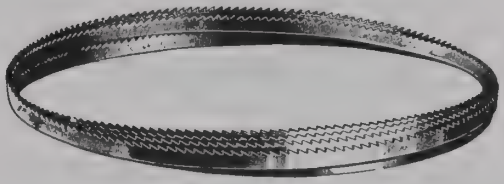
Single cut saws with sliver teeth or rubbing teeth punched on back, not swaged or fitted, add 5 per cent; if fitted in any manner, use double edge band saw price.

Wide band saws welded or brazed, on any angle except a right angle, add width of saw to finished length; example: 28′6″x8″ saw with diagonal weld or braze, add 8″ making length to charge 29′2″.

Taper ground (applied to 4½″ wide and less only), add 5 per cent to base price for each gage of taper grinding; if taper ground on two edges, add 10 per cent for each gage of taper grinding.

Simonds Narrow Band Saws

For Wood



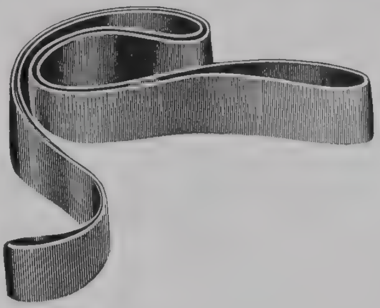
Simonds wear-resisting steel, with full rounded gullets.

Width Inches	Set and Filed per Ft.	Welding per Saw	Width Inches	Set and Filed per Ft.	Welding per Saw
1/8, 3/16, 1/4	$.143	$.74	1	$.245	$1.45
3/8	.156	.74	1¼	.286	1.45
1/2	.163	.74	1½	.354	2.18
5/8	.177	.74	1¾	.422	2.18
3/4	.197	1.09	...	....	....

Swaged teeth, any width, use 2-in. Wide Band Saw prices.
If not filed and set, deduct $.0408 per foot.
If filed but not set, deduct $.0136 per foot.
If set but not filed, deduct $.0272 per foot.
Saws a fraction over the foot in length, figure as next half foot; over the half foot in length, figure as next full foot.

Rubber Bands

For Band Saw Wheels



To use, first scrape off all old glue from wood rim of wheel; then apply glue or rubber cement to both rim and rubber band. Let dry for 72 hours.

If wheels have iron rims glue a strip of surgeon's gauze on rim of wheel before putting on rubber band.

After gauze is dry, apply another coat of glue to both rubber band and rim of wheel and stretch band on wheel.

Width In.	Each	For Wheel Diameter, Inches
1½	.....	20, 26, 27, 30, 32, 34, 36
1¾	.....	26, 27, 30, 32, 34, 36
2	.....	30, 32, 34, 36, 38, 40
2¼	.....	36, 38, 40, 42, 48
2½	.....	38, 40, 42, 48

Special sizes made to order at short notice.

Hanchett Band Saw Guides

With Ball Bearing Tempered Tool Steel Disc

Combines features of tempered tool steel revolving disc with dust-proof ball bearings, double sealed against dust and grit, providing nearly frictionless thrust support for back of saw, with equalized bearing leading saw through guide jaws. Insures perfect operation of saw.

The side guides or jaws are of tool steel, hardened and polished and practically frictionless and interchangeable.

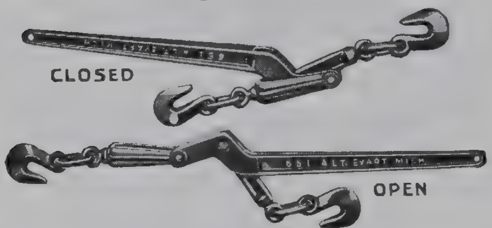
When ordering, specify width of saws; size of hole in lug casting; position of bolt as operator stands facing machine; depth and width of slot in bracket if guide bolts to a clevis or opening in frame casting; distance from bolt to back of saw; make sketch showing how old guide is fastened to machine.

No.	00	0	1	2
Each	$16.50	16.50	20.00	24.00
Size........inches	*1/8 to 1	1/8 to 1¼	1/8 to 1½	¼ to 2½
Weight....pounds	2¼	3¼	4 5/6	6 1/5

*Small for bench type band saws.

American Drop Forged All Steel Load Binders

Regular Duty



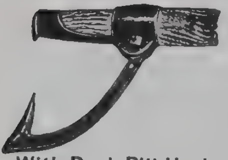
Drop forged, one-piece fork, lugs, handle, hook, ball and socket. Electric welded chain link for flexibility.

Blue finish. Packed 4 to a carton.

No.	Per Dozen	Ultimate Breaking Str., Lb.	Max. Size Chain In.	Take Up In.	Lever Lgth. In.	Approx. Wt. Lb.
305	**$53.00**	9500	⅜	3¾	15½	5
306	**65.00**	14000	½	4¼	18½	9½
651	**80.00**	16000	½	4¾	21	11¾
652	**95.00**	20000	⅝	4¼	22½	14½
***207**	**65.00**	14000	½	3½	12	8¼
†207-C	**95.00**	14000	½	3½	12	14¼

*Short handle. †Similar to No. 207 but instead of a hook, 4 feet of ⅜-inch chain is attached to clevis end.

Malleable Iron Clasp Cant Hooks



With Duck Bill Hook

With Select Hickory Handles

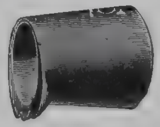
Furnished with duck, round or diamond bill hooks, extension toe ring.

Standard package, 6 in a carton.

Duck bill hook furnished unless otherwise specified.

No.	Per Doz.	Diam. In.	Lgth. Handle Ft.	Wt. Lb. per Doz.	No.	Per Doz.	Diam. In.	Lgth. Handle Ft.	Wt. Lb. per Doz.
460	**$61.00**	2¼	3	75	**235**	**$78.00**	2½	5½	110
461	**62.00**	2¼	3½	80	**236**	**80.00**	2¾	4½	120
462	**66.00**	2¼	4	85	**237**	**84.00**	2¾	5	125
463	**68.00**	2¼	4½	90	**238**	**91.00**	2¾	5½	135
464	**70.00**	2¼	5	95	**239**	**97.00**	2¾	6	140
465	**63.00**	2½	3½	90	**241**	**100.00**	3	5	142
466	**67.00**	2½	4	97	**242**	**105.00**	3	5½	149
233	**69.00**	2½	4½	102	**243**	**110.00**	3	6	158
234	**74.00**	2½	5	105	...	......	...	...	...

No. 579 Malleable Short Toe Rings

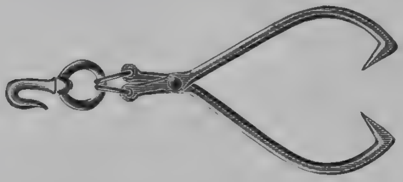


For 2½, 2¾ or 3-inch tools. Give size when ordering.

No. **579** ....per doz. **$5.00**

Skidding Tongs

With Plain Swivel and Round Hook



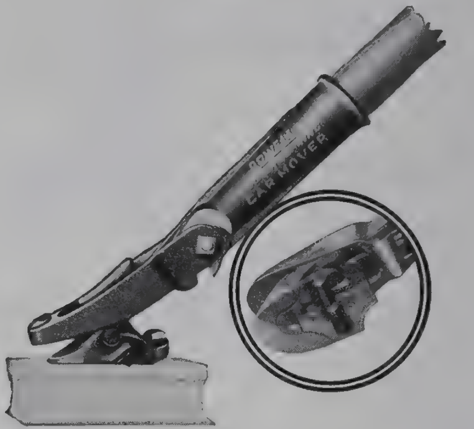
Made of special tong steel, octagon shape.

Heavy upset points.

The ¾ inch size packed 6 in bundle; other sizes packed 3 in a bundle.

No.	**506**	**499**	**500**	**501**	**502**	**502–24**
Per Doz......	**$112.00**	**132.00**	**150.00**	**167.00**	**213.00**	**213.00**
Size........in.	¾	⅞	1	1⅛	1¼	1¼
Opens......in.	16	21	24	32	36	24
Wt., Doz...lb.	80	120	180	258	324	275

Rowell Rocker Bearing Car Movers



The rocker bearing works automatically in conjunction with the compound leverage. The two spurs grip the rail in a stationary position, eliminating the chance for slipping.

Extreme length overall, 68 inches.

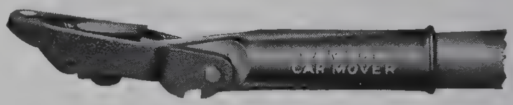
Weight of complete mover, 20 pounds.

Complete ....each **$16.00**

Repair Parts

No.	Description	Each
0	Cam in End of Arm No. 27.................	**$1.60**
R **5**	Upper Shoe Casting.........................	**4.00**
R **6**	Plate for Holding Spur with Bolt............	**1.20**
R **7**	Lower Shoe Casting.........................	**2.00**
R **8**	Tool Steel Spur, per Set.....................	**.65**
R **9**	Steel Shoe and Arm Bolt....................	**.20**
R**10**	Steel Rivet Through Cam No. 0.............	**.20**
R**11**	Steel Rivet in End of Shoe No. R5..........	**.40**
R**12**	Steel Bolt for Spur Plate No. R6............	**.20**
R**13**	Rock Maple Socket Handle..................	**3.50**
27	Socket Arm with Cam No. 0 and Bolt........	**5.50**

Samson Car Movers



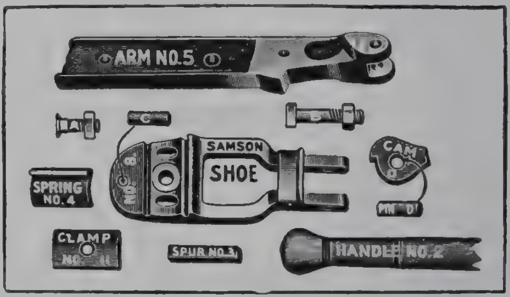
The Samson Car Mover has one long high carbon tool steel spur that secures its grippage on the top of the rail.

Handle turned from selected second growth rock maple.

Length overall, 68 inches. Weight, 18 pounds.

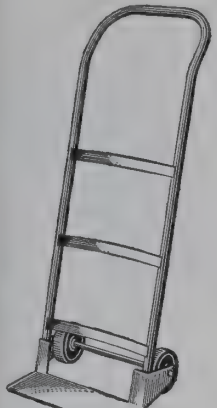
Complete ....each **$15.00**

Repair Parts



No.	Description	Each
0	Cam in End of Arms Nos. 5 and 27...........	**$1.60**
2	Rock Maple Socket Handle..................	**3.50**
27	Socket Arm with Cam No. 0 and Bolt..........	**5.50**
8	Shoe in which Spur is Located................	**4.00**
11	Plate for Holding Spur with Bolt..............	**1.20**
3	Tool Steel Spur................................	**.65**
A	Steel Bolt for Spur Plate No. 11...............	**.20**
B	Steel Shoe and Arm Bolt......................	**.20**
C	Steel Rivet in End of Shoe No. 8...............	**.40**
D	Steel Rivet Through Cam No. 0...............	**.20**
R	Arm and Handle Bolt.........................	**.20**
8	Shoe Complete with Spur, Clamp, Bolt and Rivet	**6.00**

USP Model A Superior Hand Trucks



For easy handling of cases, boxes, bags.

All steel rugged construction. Heavy steel 1-inch tubular frame; three curved cross bars.

Capacity, 500 pounds.

Width across nose plate, 16 inches.

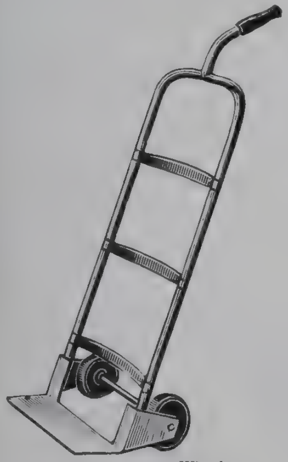
Axle, ⅝ inch.

Height, 46 inches. Width, 16 inches.

Weight, 24 pounds.

No.	Each	Wheel Size Inches	Type Wheels
A	**$9.95**	5x1.75	Soft Tread Solid Rubber, Oilite Bronze Bearing..................
A-10	**17.25**	10x2.50	Semi-Pneu. Ball Brg, Medium Duty
A-10HD	**23.95**	10x2.50	Semi-Pneumatic Roller Bearing, Extra Heavy Duty..............

USP Model B Superior Hand Trucks



For easy handling of cases, boxes, bags.

All steel rugged construction.

Heavy steel 1-inch tubular frame; three curved cross bars. Single handle rubber grip.

Capacity, 500 pounds.

Width across nose plate, 16 inches. Axle, ⅝ inch.

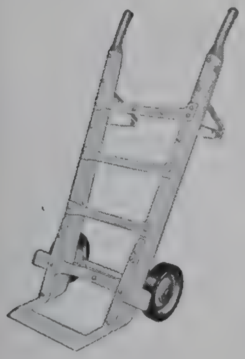
Height, 46 inches; width, 16 inches.

Weight, 24 pounds.

No.	Each	Wheel Size, In.	Type Wheels
B	**$9.95**	5x1.75	Soft Tread Solid Rubber, Oilite Bronze Bearing..................
B-10	**17.25**	10x2.50	Semi-Pneu. Ball Brg. Medium Duty
B-10HD	**23.95**	10x2.50	Semi-Pneumatic Roller Bearing, Extra Heavy Duty..............

Style X American Eastern Pattern Pressed-Steel Box Trucks

A tapered side truck.



No.	With Semi-Steel Wheels Plain Bearings Each	With Semi-Steel Wheels Cage Type Roller Bearings Each	Pressed Steel Wheels Cage Type Roller Bearings Each	Rubber Tread Wheels Ball Bearings Each
*48X	**$34.00**	.....	.....	**$42.00**
52X	.....	**$46.50**	.....	**50.50**
56X	.....	.....	**$59.50**	**58.00**
60X	.....	.....	**78.50**	**82.50**

No.	Lgth. Sides Incl. Hdl. In.	Width, In. At Hdl.	Width, In. At Nose	Lgth. Nose In.	Wheels In.	Axle In., Sq.	Wt. Lb.
48X	48	20½	13	5½	7x1¾	⅞	47
52X	52	22	14	6½	8x2	1	64
56X	56	23¾	15	7	9x2¼	1⅛	87
60X	60	25½	16	7¼	10x2½	1¼	112

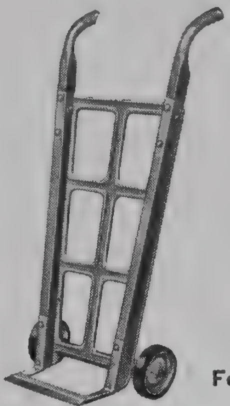
Extra for steam bent handles, **$2.00.**

*With three cross bars.

American Daisy Pressed-Steel Trucks

The side rails, cross bars and longitudinal straps of this truck are formed from one piece.

The various members are flanged or beaded similar to the regular construction in the larger sizes so that the utmost strength with light weight is assured.



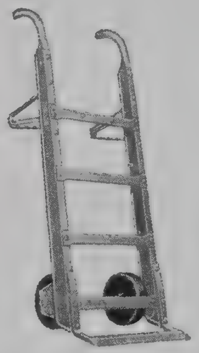
With Ball Bearing Rubber Tread Wheels................each	**$30.00**
With Plain Bearing Semi-Steel Wheels................each	**28.50**
Length of Sides Including Handles............inches	46
Width at Handles......inches	19½
Width at Nose.........inches	11½
Length of Nose........inches	5¼
Size of Wheels.........inches	6x1½
Size of Axle...........inches	⅞ Sq.
Approximate Weight..pounds	29

Folding Nose Type

In operation where a great deal of light, bulky cargo is handled this truck is available with a folding, extension nose. Nose is hinged to lower end of side rails and when extended provides truck with a 22½-inch nose. When not in use, this extension folds into body of truck between side rails so as not to interfere with normal use of truck.

With Ball Bearing Steelite Rubber Tread Wheels ....each	**$36.50**
With Plain Bearing Semi-Steel Wheels.........each	**35.00**

American Warehouse Trucks



For all-around use in warehouses, railway cars, motor trucks, hotels, institutions and other establishments.

Wheels are inside the frame making the trucks highly maneuverable in close quarters.

Side rails, cross-bars and braces are formed from steel. Axles are made from cold-rolled steel.

Seasoned hardwood handles.

Finished in red enamel.

Type W has straight cross bars for handling boxes, cases and crates.

Type WL has curved cross-bars for handling barrels, drums and rolls.

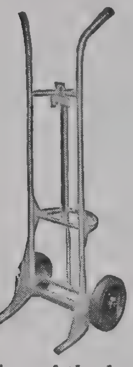
With Str. Cross-bars No.	With Curved Cross-bars No.	With Steelite Rubber Tread Wheel Ball Brg. Each	With Semi-Steel Wheel Plain Brg. Each	With Semi-Steel Wheel Roller Brg. Each	With Pressed Steel Wheel Roller Brg. Each
48W	**48WL**	**$44.00**	**$37.00**	.....	......
52W	**52WL**	**53.50**	.....	**$48.00**	......
56W	**56WL**	**64.50**	.....	.....	**$66.00**

No.	Lgth. Sides Incl. Hdl. In.	Width, In. At Hdl.	Width, In. At Nose	Lgth. Nose In.	Wheels In.	Approx. Wt. Lb.
48W	48	19	19	4½	7x1¾	50
52W	52	20	20	5	8x2	65
56W	56	22	22	5½	9x2½	89

Truck and Caster Wheels

Your orders are invited for replacement wheels to fit any casters and trucks shown in this catalog.

American Drum King Drum or Barrel Trucks



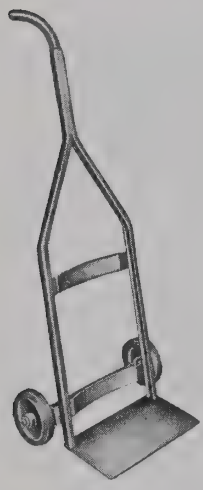
For one-man handling of barrels, drums, and cylindrical fiber containers. All steel welded construction. Maximum load, 1000 pounds.

Floating axle permits wheels to support truck in an upright, safe and space-saving position, loaded or unloaded. Truck rolls up to load without inching into place. Load is cradled and supported at four points. To load, wheel truck against side of drum, release adjusting sliding hook (21 to 42-inch range in Height) which engages the top bead. As the load is broken, the nose prongs automatically slide under drum and the wheels move back into load-carrying position. The four-point suspension of the load permits the hook to be disengaged. Should the truck strike an obstacle, the drum is free to leave without pulling either truck or operator along.

Length of side including handles, 61 inches. Width at handles, 24 inches; at nose, 13 inches. Length of nose, 3 inches. Rubber tread wheel diameter, 10 inches; face, 2½ inches Approximate weight, 73 pounds.

With Steelite Rubber Tread, Ball Brg. Wheels . each	**$88.50**
With Pressed Steel, Cage-Type Roller Brg. Whls. each	**84.00**

No. 46KC American Keg and Case Trucks



Handy, sturdy, single handle truck, designed for easy transportation of kegs, barrels, drums and miscellaneous merchandise.

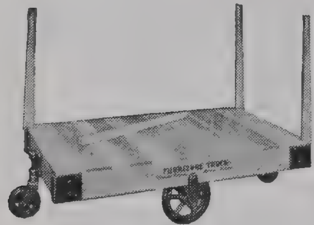
Length side with handle, 46 inches. Width at nose, 14 inches. Nose length, 7 inches. Diameter of wheels, 6 inches. Wheel tread, 1½ inches. Bore and hub length, ¾x1¾ inches. Round axle size, ¾ inch.

Weight, 27 pounds.

No. **46KC**, with Semi-Steel Wheels, Plain Bearing. ea.	**$18.00**
No. **46KC**, with Steelite Rubber Tread Whls., Ball Bearing .... ea.	**25.00**

Lansing Furniture Trucks

Stake Type



Adapted for use in woodworking and furniture plants, and factories for moving parts from one machine or department to another. Can also be used in warehouses.

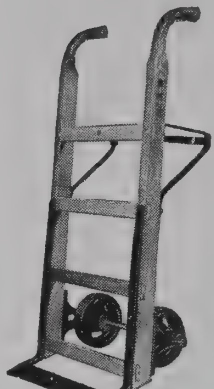
Steel angles reinforce inside corners of platform. Pressed steel stake pockets add strength to corners.

Stakes are removable and interchangeable. Platform height 17 inches.

	Mold-On Rubber Wheels	Ferro-Steel Wheels		Platform					
No.	Hyatt-Type Bearing Each	Plain Bearing Each	Hyatt-Type Bearing Each	Width Feet	Length between Stakes Feet	Diam. Wheel In.	Diam. Caster In.	Load Cap. Lb.	Wt. Lb.
1101	**$77.50**	**$57.50**	**$67.00**	2	4	12	7	1500	140
1102	**86.50**	**66.50**	**76.00**	2½	5	12	7	1500	160
1103	**93.50**	**73.50**	**83.00**	3	5	12	7	1500	190
1104	**94.00**	**61.00**	**72.00**	2	4	16	7	2000	150
1105	**102.00**	**69.00**	**80.00**	2½	5	16	7	2000	170
1106	**110.00**	**77.00**	**88.00**	3	5	16	7	2000	200

No. 30 Lansing Half Bound Store and Warehouse Trucks

Western Pattern

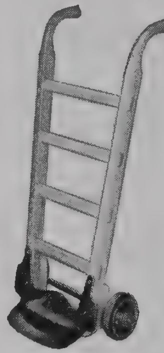


Bolted together and has forged axles with turned bearings and steam bent handles. Has a steel nose.

No.		**30–1W**	**30–2W**
With Semi-Steel Wheels	ea.	**$22.50**	**25.00**
With Rubber Whls. Plain Reg.	ea.	**$28.50**	.....
With Molded Rubber or Plastic Whls. Hyatt Reg.	ea.	**$32.50**	**41.50**
Length Handles	in.	48	52
Width	in.	19	20
No. of Cross Bars		3	4
Diam. Whls	in.	6	8
Weight	lb.	43	60

No. 50 Lansing Bag Trucks

Capacity 200 Pounds



Truck has pressed steel nose. Plain bearing wheels.

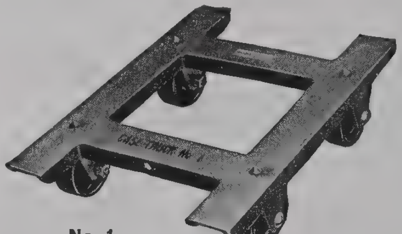
The handles are made of good quality wood well seasoned and are varnished.

Length, 42 inches; width at nose, 11¼ inches; length of nose, 5 inches; diameter of wheels, 6 inches.

Weight, 19 pounds.

No. **50**, with Iron Wheels . . ea.	**$15.00**
No. **50**, with Rubber Wheels, Plain Bearing .... each	**22.00**
No. **50**, with Molded Rubber or Plastic Wheels and Hyatts Bearing .... each	**26.00**

American Case Trucks



No. 1

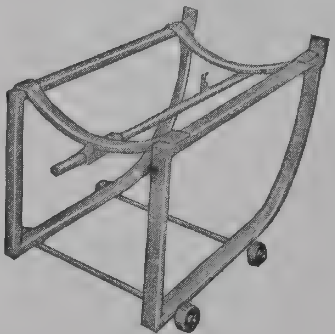
Made of heavy gage steel, members welded.

No. 1 truck has four wheels.

No. 2 truck has 6 wheels.

No.		**1**	**2**
With Semi-Steel Wheels	each	**$26.00**	**$35.50**
With Rubber Tread Wheels	each	**28.50**	**39.50**
Capacity	pounds	1000	1000
Size	inches	21x15	24x15
Height	inches	4¾	$5\frac{3}{16}$
Size of Wheels	inches	4x1⅜	4x1⅜
Weight	pounds	32	42

American Barrel Cradles



No. CW-4

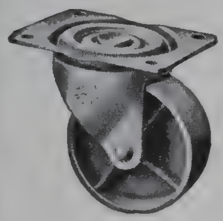
A pressed steel cradle designed for storing and draining drums and barrels.

Equipped with patented loading bar for one-man handling of drums and barrels.

		With Wheels	**Without Wheels**
No.		CW-4	C-3
Each		**$22.50**	**17.50**
Height to Spigot	inches	19	17½
For Drum Capacity	gallons	55	55

No. 100 Series Faultless Swivel Plate Truck Casters

Intermediate Duty-Ball Bearing Swivel



Designed for general use in industry—in stores, warehouses, etc.

Special king pin construction eliminates possibility of breakage. Horn is made of heavy gage steel. Hardened ball bearings travel around a large diameter, lubricated raceway. Plain finish with semi-steel; Lustre green lacquer with composition wheels.

With Semi-Steel, Roller Bearing Wheels

No.	†Each	Wheel —Inches— Diam.	Face	Plate —Inches— Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
106-3	$3.45	3	1 5/16	3 1/8	4 1/8	2 3/8x3 3/8	3 15/16	225	24	2.12
106-4	4.35	4	1 1/2	4	5 1/8	3x4	5	325	16	3.80
106-5	7.25	5	1 5/8	5 1/16	5 15/16	3 3/4x4 1/2	6 9/16	425	8	8.00
*106-6	8.50	6	2	5 13/16	6 7/16	3 3/8x5 1/4	7 3/8	500	4	11.00

With Semi-Steel, Plain Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
108-2	$.54	2	1	1 7/8	2 9/16	15/16x2 1/8	2 7/16	125	72	.69
108-2 1/2	1.15	2 1/2	1 1/8	2 3/4	3 13/16	1 3/4x3	3 1/4	175	48	1.50
108-3	1.48	3	1 5/16	3 1/8	4 1/8	2 3/8x3 3/8	3 15/16	225	24	2.12
108-4	2.50	4	1 1/2	4	5 1/8	3x4	5	325	16	3.80
108-5	5.35	5	1 1/2	5 1/16	5 15/16	3 3/4x4 1/2	6 9/16	425	8	8.00
*108-6	6.50	6	2	5 13/16	6 7/16	3 3/8x5 1/4	7 3/8	500	4	11.00

With Plaskite, Roller Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
131-3	$4.60	3	1 1/4	3 1/8	4 1/8	2 3/8x3 3/8	3 15/16	225	24	1.75
131-4	6.45	4	1 5/8	4	5 1/8	3x4	5	325	16	3.00
131-5	8.90	5	1 5/8	5 1/16	5 15/16	3 3/4x4 1/2	6 9/16	425	8	6.00
*131-6	11.00	6	2	5 13/16	6 7/16	3 3/8x5 1/4	7 3/8	500	4	9.00

With Ruberex, Soft Tread, Plain Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
121-2	$.78	2	1	1 7/8	2 9/16	15/16x2 1/8	2 7/16	90	72	.43
121-2 1/2	1.60	2 1/2	1 1/8	2 3/4	3 13/16	1 3/4x3	3 1/4	100	48	1.00
121-3	2.05	3	1 1/4	3 1/8	4 1/8	2 3/8x3 3/8	3 15/16	175	24	1.60
121-4	3.55	4	1 5/16	4	5 1/8	3x4	5	225	16	2.75
121-5	6.65	5	1 1/2	5 1/16	5 15/16	3 3/4x4 1/2	6 9/16	300	8	6.00

With Ruberex, Soft Tread, Roller Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
123-4	$4.95	4	1 5/16	4	5 1/8	3x4	5	225	16	2.75
123-5	8.10	5	1 1/2	5 1/16	5 15/16	3 3/4x4 1/2	6 9/16	300	8	6.00
*123-6	10.00	6	2	5 13/16	6 7/16	3 3/8x5 1/4	7 3/8	350	4	8.50

With Rockite, Hard Tread, Plain Bearing Wheels

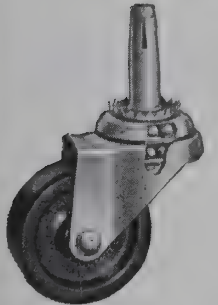
No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
127-2	$.78	2	1	1 7/8	2 9/16	15/16x2 1/8	2 7/16	125	72	.43
127-2 1/2	1.60	2 1/2	1 1/8	2 3/4	3 13/16	1 3/4x3	3 1/4	175	48	1.12
127-3	2.05	3	1 1/4	3 1/8	4 1/8	2 3/8x3 3/8	3 15/16	225	24	1.62
127-4	3.55	4	1 5/16	4	5 1/8	3x4	5	325	16	3.00
127-5	6.65	5	1 1/2	5 1/16	5 15/16	3 3/4x4 1/2	6 9/16	425	8	6.00

With Rockite Roller Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
129-4	$4.95	4	1 5/16	4	5 1/8	3x4	5	325	16	3.00
129-5	8.10	5	1 1/2	5 1/16	5 15/16	3 3/4x4 1/2	6 9/16	425	8	6.00
*129-6	10.00	6	2	5 13/16	6 7/16	3 3/8x5 1/4	7 3/8	500	4	8.50

*Not available with thread guard. All other casters are available with thread guards, and must be specified with TG affixed after caster number, when ordering, if desired.
†In carton quantity. Add 10% for less than carton quantity.

Faultless Office Chair Casters



Designed for dependable service, and produced to precise standards.

Two rows of hardened steel balls, filling two separate raceways, prevent wobbling of stem and horn.

Correct caster angle, eliminates stem strain and socket wear. Dust-proof construction.

Diameter of track plate, 1 inch. Size bore, 3/8x1 7/16 inches.

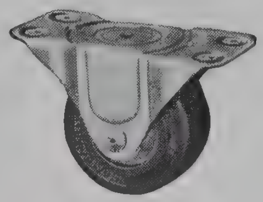
Copper oxidized finish. Furnished 4 in a set. Packed 20 sets per carton.

*In carton quantity, add 10 per cent for less than carton quantity.

Wheel Diam. In.	Ruberex Wheels (Soft Tread) No.	*Per Set	Plaskite Wheels (Hard Tread) No.	*Per Set	Wheel Face In.	Lgth. Overall In.	Approx. Wt. Lb. per Set
1 5/8	2478	$3.60	2378	$3.45	23/32	2 5/32	1 1/4
2	2479	4.00	2379	3.85	13/16	2 17/32	1 5/8

No. 500 Series Faultless Rigid Plate Truck Casters

Intermediate Duty



Made of extra heavy gage steel, deeply corrugated to withstand strain.

Holes in top plate provide a special locking device for the nut. When nut is tightened, rim of hole is drawn tight against truck.

Plain finish with semi-steel wheel; lustre green with composition wheels.

With Semi-Steel, Roller Bearing Wheels

No.	†Each	—Wheel, In.— Diam.	Face	—Plate, In.— Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
506-3	$3.25	3	1 5/16	2 1/2	4 15/16	1 3/16x4	3 15/16	275	24	1.90
506-4	3.90	4	1 1/2	3 1/8	6 1/4	1 3/4x5	5	400	16	2.75
506-5A	4.60	5	1 5/8	3 1/8	6 1/4	1 3/4x5	5 19/32	500	8	4.00
506-5	5.10	5	1 5/8	3 1/2	7 1/4	1 7/8x6	6 9/16	500	8	4.50
*506-6	5.90	6	2	3 3/4	6 1/8	2 1/2x5	7 3/8	600	4	5.50

With Semi-Steel, Plain Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
508-2	$.54	2	31/32	1 1/2	2 21/32	15/16x2 1/8	2 7/16	150	48	.50
508-2 1/2	.88	2 1/2	1 1/8	2 1/4	4 7/16	1 1/16x3 1/2	3 1/4	200	48	1.00
508-3	1.20	3	1 5/16	2 1/2	4 15/16	1 3/16x4	3 15/16	275	24	1.90
508-4	1.85	4	1 1/2	3 1/8	6 1/4	1 3/4x5	5	400	16	2.75
508-5A	2.90	5	1 1/2	3 1/8	6 1/4	1 3/4x5	5 19/32	500	8	4.00
508-5	3.30	5	1 1/2	3 1/2	7 1/4	1 7/8x6	6 9/16	500	8	4.50
*508-6	3.98	6	2	3 3/4	6 1/8	2 1/2x5	7 3/8	600	4	5.50

With Plaskite, Roller Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
531-3	$4.00	3	1 1/4	2 1/2	4 15/16	1 3/16x4	3 15/16	275	24	1.70
531-4	5.25	4	1 5/8	3 1/8	6 1/4	1 3/4x5	5	400	16	2.50
531-5A	6.90	5	1 5/8	3 1/8	6 1/4	1 3/4x5	5 19/32	500	8	2.75
531-5	7.50	5	1 5/8	3 1/2	7 1/4	1 7/8x6	6 9/16	500	8	4.50
*531-6	9.00	6	2	3 3/4	6 1/8	2 1/2x5	7 3/8	650	4	5.00

Ruberex, Soft Tread, Plain Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
521-2	$.78	2	31/32	1 1/2	2 21/32	15/16x2 1/8	2 7/16	90	48	.40
521-2 1/2	1.25	2 1/2	1 1/8	2 1/4	4 7/16	1 1/16x3 1/2	3 1/4	100	48	1.00
521-3	1.70	3	1 1/4	2 1/2	4 15/16	1 3/16x4	3 15/16	175	24	1.90
521-4	3.00	4	1 5/16	3 1/8	6 1/4	1 3/4x5	5	225	16	2.75
521-5A	4.25	5	1 1/2	3 1/8	6 1/4	1 3/4x5	5 19/32	350	8	3.00
521-5	4.65	5	1 1/2	3 1/2	7 1/4	1 7/8x6	6 9/16	300	8	4.50
*521-6	5.90	6	2	3 3/4	6 1/8	2 1/2x5	7 3/8	350	4	5.50

Ruberex, Soft Tread, Roller Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
529-4	$4.40	4	1 5/16	3 1/8	6 1/4	1 3/4x5	5	400	16	2.75
529-5A	5.75	5	1 1/2	3 1/8	6 1/4	1 3/4x5	5 19/32	500	8	3.25
529-5	6.00	5	1 1/2	3 1/2	7 1/4	1 7/8x6	6 9/16	500	8	4.50
*529-6	7.30	6	2	3 3/4	6 1/8	2 1/2x5	7 3/8	650	4	5.50

Rockite, Hard Tread, Plain Bearing Wheels

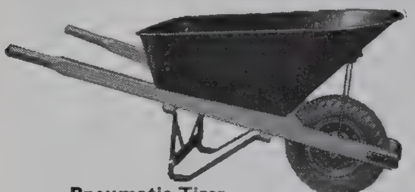
No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
527-2	$.78	2	31/32	1 1/2	2 21/32	15/16x2 1/8	2 7/16	150	48	.40
527-2 1/2	1.25	2 1/2	1 1/8	2 1/4	4 7/16	1 1/16x3 1/2	3 1/4	200	48	1.00
527-3	1.70	3	1 1/4	2 1/2	4 15/16	1 3/16x4	3 15/16	275	24	1.90
527-4	3.00	4	1 5/16	3 1/8	6 1/4	1 3/4x5	5	400	16	2.75
527-5A	4.25	5	1 1/2	3 1/8	6 1/4	1 3/4x5	5 19/32	500	8	3.25
527-5	4.65	5	1 1/2	3 1/2	7 1/4	1 7/8x6	6 9/16	500	8	4.50
*527-6	5.90	6	2	3 3/4	6 1/8	2 1/2x5	7 3/8	650	4	5.50

Rockite, Hard Tread, Roller Bearing Wheels

No.	†Each	Wheel Diam.	Face	Plate Width	Lgth.	Mounting Holes In.	Ht. Overall In.	Load Cap. Lb.	No. of Pieces per Ctn.	Approx. Wt. Lb.
523-4	$4.40	4	1 5/16	3 1/8	6 1/4	1 3/4x5	5	225	16	2.75
523-5A	5.75	5	1 1/2	3 1/8	6 1/4	1 3/4x5	5 19/32	350	8	3.00
523-5	6.00	5	1 1/2	3 1/2	7 1/4	1 7/8x6	6 9/16	300	8	4.50
*523-6	7.30	6	2	3 3/4	6 1/8	2 1/2x5	7 3/8	350	4	5.50

*Not available with thread guard. All other casters are available with thread guards and must be specified with TG affixed after caster number, when ordering, if desired.
†In carton quantity. Add 10% for less than carton quantity.

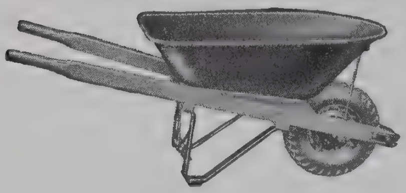
No. M11 Jackson Contractors' Barrows


Pneumatic Tires

For use where narrow tray with large capacity is required. Straight-sided construction; increased depth in rear. Tray has folded corners spot-welded; non-leakable; three thicknesses of steel at folds; edge of tray reinforced. Riveted channel legs with heavy steel shoes. Square channel wheelguard. Malleable axle brackets with threaded axle. Fabricated with lock washers. Tray painted blue; all other metal parts painted black. Varnished hardwood handles. Capacity: heaped, 5 cubic feet; even full, 4 cubic feet. No. 16 gage tray. Overall dimensions: length, 61 inches; width, 26 inches; height, 29 inches. Length hub, 7 inches. Bore, ⅝ inch.

	Plain Bearings		Roller Bearings	
No.	M11–22	M11–24	M11–22RB	M11–24RB
Each	.....	.....	.....	.....
Wheel: No.	22	24	22RB	24RB
No. Plies	2	4	2	4
Pressure ..pounds	35	55	35	55
Weight..pounds	75	76	75	76

Type M4-22RB Jackson Contractors' Wheelbarrows



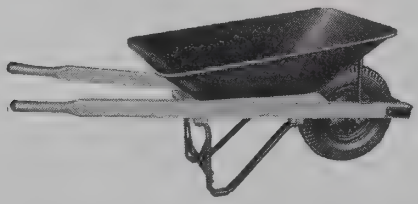
Tray pressed from heavy gage steel sheets and reinforced with steel rod in edges. Varnished hardwood handles. Square channel wheelguards. Riveted channel legs with heavy steel shoes. Malleable axle brackets with threaded axles. Tray is painted blue. All other metal parts are painted black. Fabricated with lock washers.

Tray size 37½x27¾ inches. Heaped capacity, 4 cubic feet. 16 gage. Pressed steel disc wheel with 4.00x8 tire, roller bearings. Also available with No. 12 steel wheel.

Type M4-22RB, Approximate Weight, 68 Pounds.each ....

Jackson General Purpose Wheelbarrows

Heaped Capacity, 4 Cubic Feet



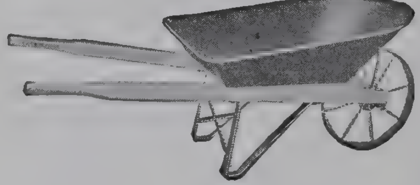
Square front tray pressed from 16-gage steel sheet and edge reinforced with continuous steel rod. Even full capacity, 3 cubic feet.

Square channel wheel guard. Riveted channel legs with heavy steel shoes. Malleable axle brackets with threaded axle. Varnished hardwood handles. Tray is painted blue and all other metal parts are painted black. Fabricated with lock washers.

Tray size, 36x28½ inches. Length overall, 61 inches. Width overall, 28½ inches. Height overall, 23 inches. Pressed steel disc wheel 16-inch diameter with 4.00x8 tire, roller bearings.

No.	K5-22RB	K5-24RB
Wheel No.	22RB	24RB
No. of Tire Plies	2	4
Weight.....pounds	63	65

No. M4-12 Jackson Contractors' Barrows



For wet materials.

Has deep, 16-gage steel tray with reinforced edges of steel rods. Rounded front for easy pouring.

Hardwood handles, with heavy channel square wheelguards. Heavy steel channel legs with full bearing surface on handles, fitted with special steel shoes.

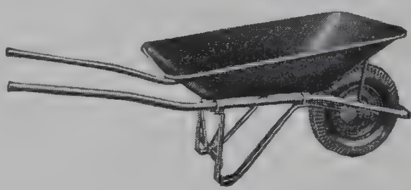
Capacity heaped, 4 cubic feet. Capacity even full, 3 cubic feet. Wheel, 16 inches diameter. Length, 61 inches. Width, 27¼ inches. Height, 25½ inches.

Size of tray, 37½x27½ inches.

Approximate weight, 68 pounds.

No. M4-12.........each .....

Jackson Tubular Steel Wheelbarrows

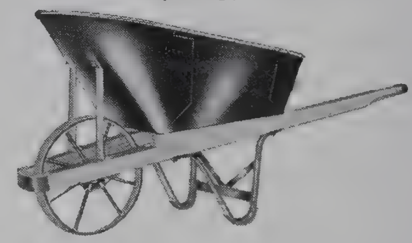


For use around mills, mines, railroads, industrial and power plants. Pressed steel disc wheels, 16-inch diameter, with 4.00x8 tires, roller bearings.

No.	T5-22RB	T5-24RB	T8-22RB	T8-24RB
Wheel No.	22RB	24RB	22RB	24RB
No. of Tire Plies	2	4	2	4
Tray Gage	16	16	15	15
Capacity Heaped...cu. ft.	4	4	6	6
Capacity Even Full.cu. ft.	3	3	4	4
Length Overall....in.	65	65	68	68
Width Overall.inches	28½	28½	33	33
Height Overall.inches	21	21	25	25
Weight.......pounds	63	63	80	81

No. STD-3WS General Contractors' Steel General Purpose Barrows

Struck Capacity, 3 Cubic Feet



Round nose 16-gage tray. Hi-lift channel legs, good balance. Steel wheel, 16 inches in diameter, 7-inch hub has eight spokes, 1½x1¼-inch steel tire.

Length overall, 61 inches. Width tray, 25 inches; length tray, 36 inches; depth tray, 11¼ inches.

No. STD.3WS, Weight, 65 pounds.............each **$22.88**

MANUFACTURERS' CATALOGS

We shall be glad to send Manufacturers' Catalogs and Other Available Publications and Data on request.

General De-Lux Tubular Concrete Barrows

For contractors, railroads and industrial concerns.

Tubular steel handles with rubber handle grips. Channel steel legs with heavy shoes.

Tray of 16-gage steel supported by heavy cross braces to prevent bottom from sagging.

Roller bearing wheel with 2-ply 4:00x8-inch tire and tube.

Overall length, 61 inches.

No.	3-S2	3½-S2	4-S2
Each	$36.60	37.60	39.12
Struck Capacity.........cubic feet	3	3½	4
Tray Length.........inches	36	37	38
Tray Width.........inches	25	25½	26
Tray Depth.........inches	11¼	12	13½
Weight.........pounds	73	76	79

General De-Lux All Steel Tubular Coal Barrows

Capacity, 5 Cubic Feet

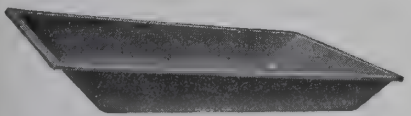
For hauling coal, hot ashes, or other bulky material around coal yards and boiler rooms. Also for handling forgings, castings, etc. Tray extends well over wheel for proper load balance. Round nose 16-gage tray. Alloy steel handles with rubber hand grips. Steel spoke wheel, 16 inches in diameter, 7½-inch hub.

Length overall, 63 inches. Width tray, 26 inches; length tray, 36 inches; depth tray, 13½ inches.

Weight, 79 pounds.

No. 4SS.........each	**$29.18**

Jackson Steel Mortar Mixing Boxes



Sides and bottom are formed from a single sheet of steel. Corners are lapped and welded.

Top flanges at corners are reinforced with pressed steel sections securely welded in position. Top edges are flanged out and down for reinforcing. Ends are curved gradually into bottom. Inside of box perfectly smooth.

Number	30	40	50	60
Each	...	...	...	...
Length.........inches	48	60	90	108
Width.........inches	26	32	42	48
Depth.........inches	11	11	11	11
Gage Steel	16	16	14	12
Approximate Weight Each.pounds	44	65	153	249

General Industrial and Wheelbarrow Pneumatic Tires and Wheels

This combination of pneumatic tire with separate inner tube and heavy duty wheel unit rolls with little vibration and ease over rough, smooth or soft surfaces at faster speeds than iron wheeled equipment. Suitable for use on old or new equipment. Protects floors and coverings from wheel marks. Provides firm traction on power driven equipment. Easily demountable wide base rim designed for large load capacities.

Industrial Pneumatic Tires

Wide Base Type—Silent Grip Thread

Size—Tire—O.D. O.S. R.D.	No. of Plies	Max. Load Lb.	Rim Size Width Diam.	Cross Section In.	Rolling Radius Inches	Weight—Pounds Tire	Weight—Pounds Tube
8x3.00–4	2	175	4.0x2.80	3.14	3.96	1.12	.43
8x3.00–4	4	250	4.0x2.80	3.13	3.96	1.50	.43
10x3.50–4	2	225	4.0x2.80	3.56	4.76	1.75	.59
10x3.50–4	4	350	4.0x2.80	3.55	4.76	2.25	.59
12x4.00–6	2	375	6.0x3.75	4.24	5.90	2.98	.93
12x4.00–6	4	500	6.0x3.75	4.22	5.89	4.00	.93
14x4.50–6	2	400	6.0x3.75	4.71	6.60	3.65	1.01
14x4.50–6	4	600	6.0x3.75	4.69	6.58	5.00	1.01
14x4.50–6	6	775	6.0x3.75	4.67	6.56	6.35	1.01
16x5.00–8	4	700	8.0x4.25	5.03	7.57	6.00	1.17
16x5.00–8	6	900	8.0x4.25	5.02	7.59	8.00	1.17
18x5.50–8	2	450	8.0x4.25	5.72	8.39	8.00	1.76
18x5.50–8	4	800	8.0x4.25	5.70	8.39	9.78	1.76
18x5.50–8	6	1050	8.0x4.25	5.69	8.40	11.50	1.76
*12″ Jumbo Jr.	4	....	5.0x3.25	3.94	5.56	3.33	.63
Tire and Rim Standard—Rib Tread							
†4.00–8	2	510	8.0x2.50	4.00	7.16	3.75	1.00
†4.00–8	4	695	8.0x2.50	3.97	7.35	4.50	1.00
†4.00–8	6	855	8.0x2.50	3.94	7.43	5.50	1.00
6.50–10	6	1590	10.0x5.00	6.74	10.64	21.50	3.00
6.50–10	8	1850	10.0x5.00	6.72	10.67	25.00	3.00

Wheelbarrow Pneumatic Tires

16x5.00–8	4	700	8.0x4.25	5.03	7.57	6.00	1.17
16x5.00–8	6	900	8.0x4.25	5.02	7.59	8.00	1.17
4.00–8	2	510	8.0x2.50	4.00	7.16	3.75	1.00
4.00–8	4	695	8.0x2.50	3.97	7.35	4.50	1.00
4.00–8	6	855	8.0x2.50	3.94	7.43	5.50	1.00

Industrial Pneumatic Wheels

Heavy Duty—Wide Base—Demountable Hub

Tire Marking	Wheel No.	Rim Size Diam. Width	Max. Load Rating Lb.	Bore Size In.	Hub Lgth. In.	Type Bearing	Wt. Lb.
8x3.00–4	B-63	4.0x2.80	500	‖⅝	2	Straight Roller	2.31
10x3.50–4	B-63	4.0x2.80	500	¶⅝	2		2.31
12x4.00–6	B-116	6.0x3.75	800	1	2½		4.69
14x4.50–6	B-116	6.0x3.75	800	1	2½		4.69
16x5.00–8	C-2966	8.0x4.75	1100	1¼	3,4	Tapered Roller	11.19
	§C-1487	8.0x3.75	900	¾	5⅝		10.12
18x5.50–8	C-2966	8.0x4.75	1100	1¼	3,4		11.19
	§C-1487	8.0x3.75	900	¾	5⅝		10.12
6.50–10	C-2567	10.0x5.00	2000	1¼	4		15.75
	C-2568	10.0x5.00	2000	**	**		18.50
Medium Duty—Wide Base—Fixed Hub							
8x3.00–4	C-1484	4.0x2.80	250	⅝	2	Ball	1.75
10x3.50–4	C-1484	4.0x2.80	250	⅝	2		1.75
12x4.00–6	C-1568	6.0x3.75	400	1	3		4.75
	C-1569	6.0x3.75	700	1	3	Tapered Roller	4.75
14x4.50–6	C-1568	6.0x3.75	400	1	3		4.75
	C-1569	6.0x3.75	700	1	3		4.75

Wheelbarrow Pneumatic Wheels

†4.00–8	††C-1956	8.0x2.50	700	⅝,¾	6,7,7½	Ball	5.31
16x5.00–8	‡‡C-1503	8.0x3.75	700	⅝,¾	6,7,7½		5.94
	‡‡C-2267	8.0x3.75	700	¾	5,6,7½	Tapered Roller	6.12

*For replacement only on wheels in service, no new wheels available.

†Requires 16x5.00–8 tube when mounted on No. C-1503 wide base wheelbarrow wheels.

§ For use spring type trailer forks—fixed hub.

‖ ½, ¾ and 1-inch on special order.

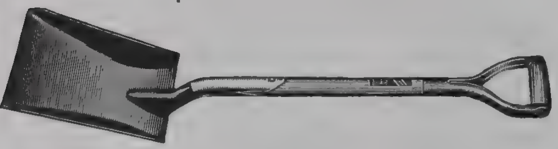
¶ ¾, 1⅛ and 1¼-inch on special order. Also **1-inch bore** in 3-inch hub.

**For tapered axle.

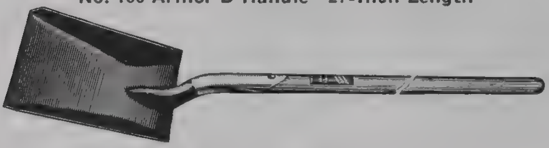
†† Tire and rim narrow base type. ‡‡ Wide base type.

Ames Lock Socket Shovels and Spades

Square Point Shovels



No. 100 Armor D Handle—27-Inch Length



No. 101 Long Handle—51-Inch Length Std.; 48-Inch Length F'lite.

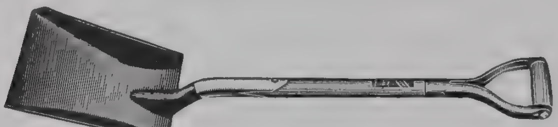
		No. 100		No. 101	
Size No.		2	4	2	4
Alloy	ea.	$5.36	$5.66	$5.18	$5.48
A Grade	ea.	5.12	5.42	4.94	5.24
B Grade	ea.	4.86	5.16	4.68	4.98
***B Grade F'lite**	ea.	4.60	....	4.42	....
C Grade	ea.	4.36	4.66	4.18	4.48
Blade Size	in.	9½x12	10½x13	9½x12	10½x13
Wt. per Doz.	lb.	56–62	62–68	56–62	62–68

*Blade size, 9¼x11½ in.; wt. per doz., 47–54 lb.

Repair Handles

	No. 100		No. 102	
	No.	Each	No.	Each
Alloy	1A	$1.56	1L	$1.42
A Grade	1A	1.56	1L	1.42
B Grade	1A	1.56	1L	1.42
B Grade F'lite	1AF	1.56	1LF	1.42
C Grade	1A	1.56	1L	1.42

No. 104 Railroad Track Shovels



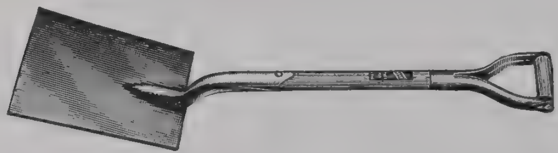
Armor D Handle—27-Inch Length

Size No.		2
Alloy	each	$5.66
A Grade	each	5.42
Blade Size (13 Gage)	inches	9¾x12
Weight per Dozen	pounds	68–72

Repair Handles

No. XX1A	each	$1.72

No. 106 Moulders Shovels



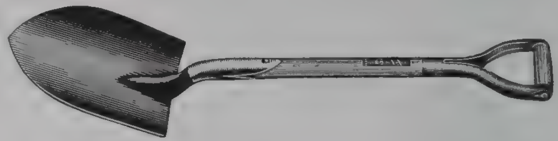
Armor D Handle—27-Inch Length

Size No.		2
Alloy	each	$5.46
A Grade	each	5.22
B Grade	each	4.96
C Grade	each	4.46
Blade Size	inches	9¾x12
Weight per Dozen	pounds	58–60

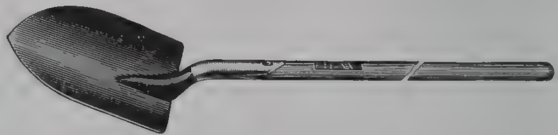
Repair Handles

	No.	Each
Alloy	1A	$1.56
A Grade	1A	1.56
B Grade	1A	1.56
C Grade	1A	1.56

Round Point Shovels



No. 102 Armor D Handle—27-Inch Length



No. 103 Long Handle—51-Inch Length Std.; 48-Inch Length F'lite.

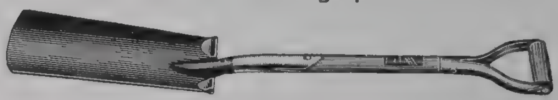
		No. 102		No. 103	
Size No.		2	4	2	4
Alloy	ea.	$5.36	$5.66	$5.18	$5.48
A Grade	ea.	5.12	5.42	4.94	5.24
B Grade	ea.	4.86	5.16	4.68	4.98
†B Grade F'lite	ea.	4.60	....	4.42	....
C Grade	ea.	4.36	4.66	4.18	4.48
Blade Size	in.	9x12	9¾x12¾	9x12	9¾x12¾
Wt. per Doz.	lb.	54–62	62–66	54–62	62–68

†Blade size, 8¾x11¾ in.; wt. per doz., 45–50 lb.

Repair Handles

	No. 102		No. 103	
	No.	Each	No.	Each
Alloy	1A	$1.56	1L	$1.42
A Grade	1A	1.56	1L	1.42
B Grade	1A	1.56	1L	1.42
B Grade F'lite	1AF	1.56	1LF	1.42
C Grade	1A	1.56	1L	1.42

No. 118 Ditching Spades



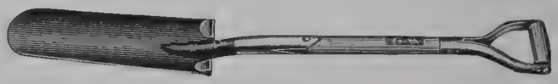
Armor D Handle—27-Inch Length

Size	inches	14	16	18
A Grade	each	$5.42	$5.66	$5.90
B Grade	each	5.16	5.40	5.64
Blade Size	inches	6¼x14	6¼x16	6¼x18
Weight per Dozen	pounds	60	63	66

Repair Handles

	No.	Each
A Grade	1AS	$1.56
B Grade	1AS	1.56

No. 120 Drain Spades



Armor D Handle—27-Inch Length

Size	inches	14	16	18
A Grade	each	$5.42	$5.66	$5.90
B Grade	each	5.16	5.40	5.64
Blade Size	inches	4¾x14	4¾x16	4¾x18
Weight per Dozen	pounds	56	59	62

Repair Handles

	No.	Each
A Grade	1AS	$1.56
B Grade	1AS	1.56

Lock Socket Construction

Blades and front strap a single unit, no weld. Forged from high carbon steel. Back strap electrically seam welded to blade. Straps are preformed assuring uniformity in lift and balance. Hang and balance never change. Blade and bottom section of straps carefully tempered. Handle is driven to point of frog.

Explanation of Grades

Alloy Grade: Blades forged from chrome nickel alloy steel. XX grade northern ash handles. Standard weight, 14 gage; featherlite, 16 gage.

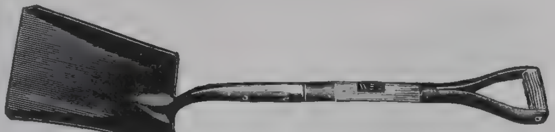
A Grade: Blades forged from special analysis high carbon steel. XX grade northern ash handles. Standard weight, 14 gage; Featherlite, 16 gage.

B Grade or B Grade Featherlite: Blades forged from special analysis high carbon steel. X grade handles. Standard weight, 14 gage; Featherlite, 16 gage.

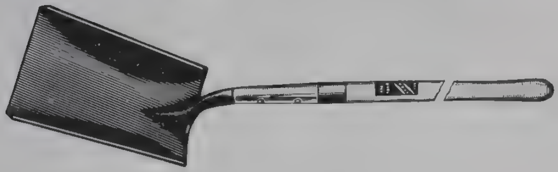
C Grade: Blades forged from special analysis high carbon steel. No. 1 grade handles. Gage, 15.

Ames Solid Shank Shovels

Square Point Shovels



No. 200 Armor D Handle—27-Inch Length



No. 201 Long Handle—50-Inch Length Std.; 48-Inch Length Fwt.

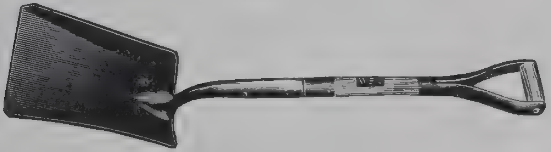
	No. 200		No. 201	
Size No.	2	4	2	4
A Grade......ea.	$5.12	$5.42	$4.94	$5.24
B Grade......ea.	4.86	5.16	4.68	4.98
***B Grade F'lite**...ea.	4.60	....	4.42	....
Blade Size......in.	9¾x12	10¼x13	9¾x12	10¼x13
Wt. per Doz......lb.	58–62	62–66	58–62	62–66

*Blade size, 9¾x11¾ in.; wt. per doz., 54–58 lb.

Repair Handles

	No. 200		No. 201	
	No.	Each	No.	Each
A Grade	2A	$1.18	2L	$.94
B Grade	2A	1.18	2L	.94
B Grade F'lite	2AF	1.18	2LF	.98

No. 204 Railroad Track Shovels



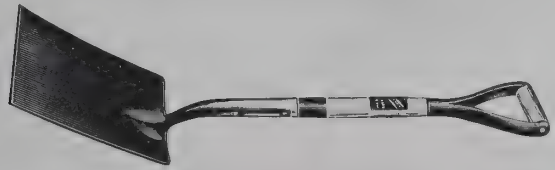
Armor D Handle—27-Inch Length

Size No.	2
A Grade......each	$5.44
Blade Size (13 Gage)......inches	10x12
Weight per Dozen......pounds	70–72

Repair Handles

No. XX2AT......each	$1.36

No. 206 Moulders' Shovels



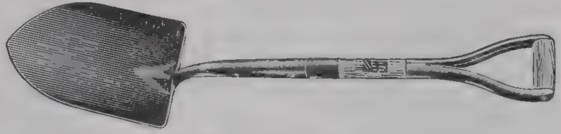
Armor D Handle—27-Inch Length

Size No.	2
A Grade......each	$5.22
B Grade......each	4.96
Blade Size......inches	9¾x11¾
Weight per Dozen......pounds	62–64

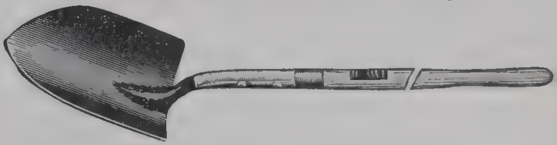
Repair Handles

	No.	Each
A Grade	2A	$1.18
B Grade	2A	1.18

Round Point Shovels



No. 202 Armor D Handle—27-Inch Length



No. 203 Long Handle—50-Inch Length Std.; 48-Inch Length Fwt.

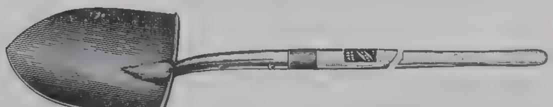
	No. 202		No. 203	
Size No.	2	4	2	4
A Grade......ea.	$5.12	$5.42	$4.94	$5.24
B Grade......ea.	4.86	5.16	4.68	4.98
†B Grade F'lite...ea.	4.60	....	4.42	....
Blade Size......in.	9¼x12	9⅞x13	9¼x12	9⅞x13
Wt. per Doz......lb.	54–58	58–62	54–58	58–62

†Blade size, 8¾x11¾ in.; wt. per doz., 50–54 lb.

Repair Handles

	No. 202		No. 203	
	No.	Each	No.	Each
A Grade	2A	$1.18	2L	$.94
B Grade	2A	1.18	2L	.94
B Grade F'lite	2AF	1.18	2LF	.88

No. 217 Round Point Irrigating Shovels



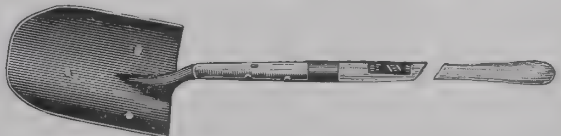
Long Handle—50-Inch Length Std.; 48-Inch Length Fwt.

Size No.	A Grade Each	B Grade Each	Blade Size Inches	Wt. Lb. per Dozen
1	$4.94	$4.68	8¼x11¼	54–56
2	4.94	4.68	9 x12	58–60
00 Fwt.	....	4.42	7 x 9½	40–42
0 Fwt.	....	4.42	8 x10¼	44–46
1 Fwt.	....	4.42	8¼x11¼	48–50
2 Fwt.	....	4.42	9 x11½	50–52

Repair Handles

	No.	Each
A Grade	2L	$.94
B Grade	2L	.94
B Grade F'lite	2LF	:88

No. 225 Perforated Rice Shovels



Long Handle—50-Inch Length Std.; 48-Inch Length Fwt.

Size No.	1	2	1 Fwt.	2 Fwt.
A Grade	$5.22	$5.22	....	....
B Grade	4.96	4.96	$4.70	$4.70
Blade Size......in.	8¼x10½	9x11¼	8x10¼	8¾x10¾
Wt. per Doz......lb.	52–54	56–58	46–48	48–50

Repair Handles

	No.	Each
A Grade	2L	$.94
B Grade	2L	.94
B Grade F'lite	2LF	.88

Solid Shank Construction

Blade, shank and socket forged from one solid bar of steel and the blade is tempered to give it the necessary hardness with proper ductility. Shock band. Solid steel shank. Thick center. Blade taper rolled.

Explanation of Grades

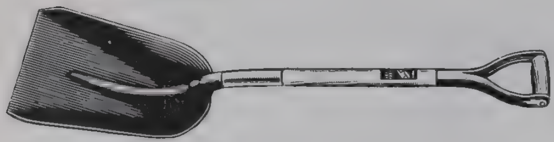
A Grade: Blades forged from a solid bar of special analysis high carbon steel. XX grade northern ash handles. Standard weight, 14–15 gage. Featherweight, 15–16 gage.

B Grade: Blades forged from solid bar of special analysis high carbon steel. X grade northern ash hdles. Gage, 14–15.

B Grade Featherlite: Blade forged from a solid bar of special analysis high carbon steel. X grade northern ash handles. Gage, 15–16.

Ames Hollow Back Shovels and Scoops

Eastern Pattern Scoops



No. 308 Armor D Handle—27-Inch Length

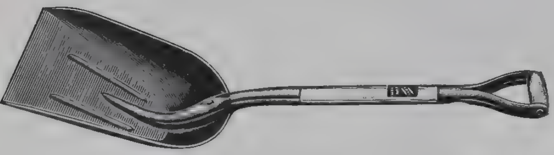
No. 309 Long Handle—48-Inch Length (not illustrated)

	No. 308			No. 309		
Size No.	2	4	6	2	4	6
Alloy ea.	$5.22	$5.46	$5.70	$5.04	$5.28	$5.52
A Grade ea.	4.68	4.92	5.16	4.50	4.74	4.98
B Grade ea.	4.38	4.62	4.86	4.20	4.44	4.68
C Grade ea.	3.96	4.20	4.44	3.78	4.02	4.26
Blade Size (16 Ga.) in.	11x15	11½x16	12x17	11x15	11½x16	12x17
Wt. per Doz. lb.	63–66	67–70	71–74	63–66	67–70	71–74

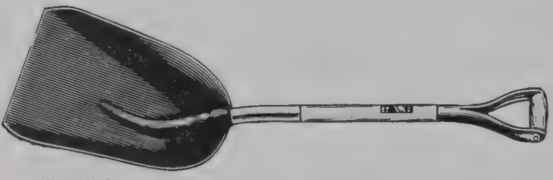
Repair Handles

	No. 308		No. 309	
	No.	Each	No.	Each
Alloy	3A	$1.46	3L	$1.32
A Grade	3A	1.46	3L	1.32
B Grade	3A	1.46	3L	1.32
C Grade	3A	1.46	3L	1.32

Western Pattern Scoops



No. 310 Armor D Handle—Ribbed—27-Inch Length



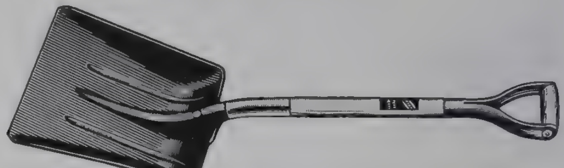
No. 312 Armor D Handle—Plain—27-Inch Length

Size No.	8	10	12	14
Alloy each	$5.70	$5.94	$6.18	....
A Grade each	5.16	5.40	5.64	$5.88
B Grade each	4.86	5.10	5.34	5.58
C Grade each	4.44	4.68	4.92 ½	5.16
Blade Size (17 Gage) in.	13¾x17	14¼x18	14¾x19	15¼x20
Wt. per Dozen lb.	68–72	72–76	76–80	80–84

Repair Handles

	No.	Each
Alloy	3A	$1.46
A Grade	3A	1.46
B Grade	3A	1.46
C Grade	3A	1.46

Ribbed Coal Shovels



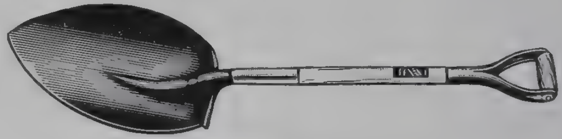
No. 306 Armor D Handle—27-Inch Length
No. 306-L Long Handle—48-Inch Length (not illustrated)

	No. 306		No. 306-L	
Size No.	2	4	2	4
Alloy ea.	$5.34	$5.58	$5.16	$5.40
A Grade ea.	4.92	5.16	4.74	4.98
B Grade ea.	4.62	4.86	4.44	4.68
C Grade ea.	4.20	4.44	4.02	4.26
Blade Size (17 Ga.) in.	13½x14½	14¼x15½	13½x14½	14¼x15½
Wt. per Doz. lb.	62–65	67–70	62–65	67–70

Repair Handles

	No. 306		No. 306-L	
	No.	Each	No.	Each
Alloy	3AC	$1.46	3LC	$1.32
A Grade	3AC	1.46	3LC	1.32
B Grade	3AC	1.46	3LC	1.32
C Grade	3AC	1.46	3LC	1.32

No. 316 Diamond Point Breakdown Scoops



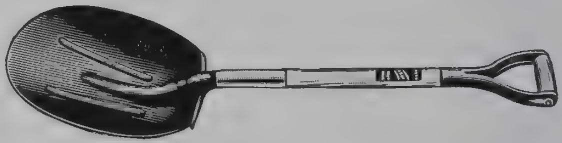
Armor D Handle—27-Inch Length

Size No.	5
Alloy each	$5.64
A Grade each	5.04
B Grade each	4.74
Blade Size (15 Gage) inches	11¼x16½
Weight per Dozen pounds	66–68

Repair Handle

	No.	Each
Alloy	3A	$1.46
A Grade	3A	1.46
B Grade	3A	1.46

No. 318 Round End Sand and Gravel Scoops



Armor D Handle—27-Inch Length

Size No.	2
Alloy each	$5.34
A Grade each	4.80
B Grade each	4.50
C Grade each	4.08
Blade Size (16 Gage) inches	11x15
Weight per Dozen pounds	63-65

Repair Handles

	No.	Each
Alloy	3A	$1.46
A Grade	3A	1.46
B Grade	3A	1.46
C Grade	3A	1.46

Hollow Back Construction

Hollow back shovels and scoops are intended primarily for handling loose and bulky materials—coal, sand, gravel, rock, ore, grain, etc. A frog or ridge in center of blade gives rigidity. In the larger sizes the addition of two length-wise corrugations adds strength and permits lighter weight tools. Blade and socket made from one piece of steel.

Explanation of Grades

Alloy: Blades forged from chrome nickel alloy steel. XX grade northern ash handles.

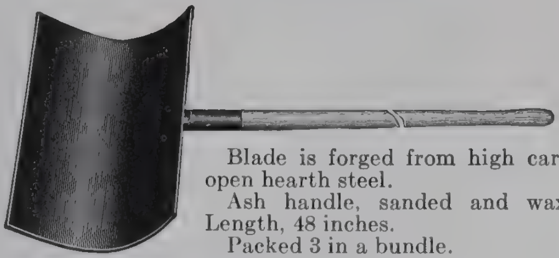
A Grade: Blades forged from special analysis high carbon steel. XX grade northern ash handles.

B Grade: Blades forged from special analysis high carbon steel. X grade handles.

C Grade: Blades forged from special analysis high carbon steel. No. 1 grade handles.

Ames Snow Pushers

Bear Brand



Blade is forged from high carbon open hearth steel.

Ash handle, sanded and waxed. Length, 48 inches.

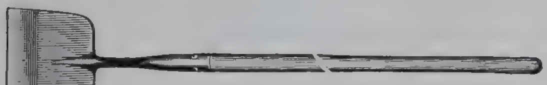
Packed 3 in a bundle.

No.	411	413
Each	$2.24	2.48
Size Blade ... inches	10x18	10x24
Weight per Dozen ... pounds	70	88

No. SPK Repair Handles are available.

No. 427 Ames Sidewalk Scrapers

Socket Pattern—Long Handle



Blade: Socket and blade forged from one piece of high carbon steel, tempered. Size, 7x6 inches. Black finish.

Handle: Selected northern ash, smoothly sanded and waxed. Length, 54 inches.

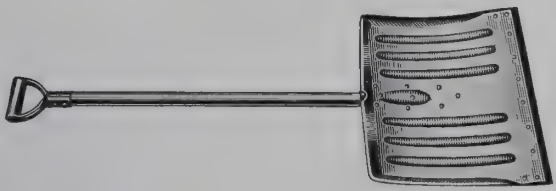
Tied 6 in a bundle.

Weight per dozen, 39 pounds.

No. **427**	each	**$2.60**
No. GH4½, Repair Handle	each	**.76**

No. AW-340 Ames Aluminum Alloy Snow Shovels

Wide Pattern



Equipped with steel edge securely riveted to front edge of blade.

Blade size, 18x15 inches.

Round wood handle with burntcote finish.

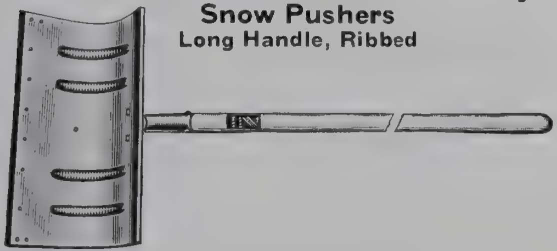
Packed 6 in a bundle.

Weight per dozen, 46 pounds.

No. AW-**340**	each	**$3.20**

No. ALR18 Ames Aluminum Alloy Snow Pushers

Long Handle, Ribbed



Equipped with steel edge securely riveted to front edge of blade.

Blade size, 10x18 inches.

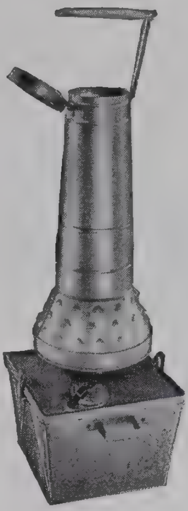
Round wood handle with burntcote finish, length 48 inches.

Packed 3 in a bundle.

Weight per dozen, 58 pounds.

No. ALR**18**	each	**$3.20**

Danco Smokeless Oil Salamanders



Uses less than one gallon of oil an hour; extinguished in thirty seconds and can be removed immediately.

Burns a good quality of kerosene, at normal firing speed and is smokeless.

No type of oil burning heater should ever be used with finished paint or plaster work unless it is piped to outside atmosphere.

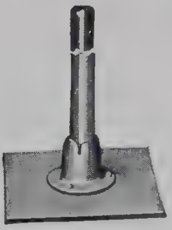
Made of 24-gage extra deep, seamless drawn steel. Bowls and covers are hot dip galvanized. Stacks are made of 24-gage galvanized sheets.

Size, 4 feet high by 16½ inches at the base.

Weight, 25 pounds.

Each	**$19.50**

Style 1 Tampers

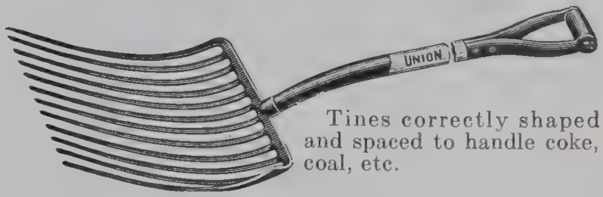


A sturdy, concrete tamper consisting of a heavy steel plate with malleable iron socket and 4-foot wood handle.

Base ... inches	8x8	10x10	12x12
Each	**$8.00**	**9.00**	**9.80**
Weight ... pounds	10	13	20

Union Coke Forks

17-Inch Diamond Tines—Tapertite Ferrule
30-Inch Bent Handle with Steel D Top

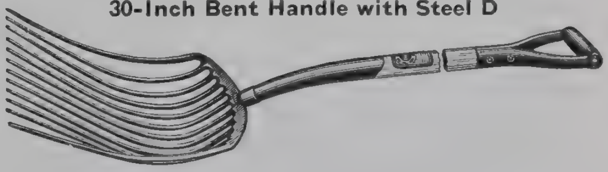


Tines correctly shaped and spaced to handle coke, coal, etc.

	10-Tine	12-Tine	14-Tine
No.	K10	K12	K14
Per Dozen	....	....	....
Width at Center ... inches	14½	17½	20½
Spacing of Tines ... inches	1¼	1¼	1¼
Weight per Dozen ... pounds	96	108	112
No. **170**, Right Repair Handle ... per dozen			.....

Union Coal Scoop Forks

16-Inch Round Tines—Tapertite Ferrule
30-Inch Bent Handle with Steel D



Scoop shape pattern. Packed 6 in a bundle.

	10-Tine	12-Tine	14-Tine
No.	C10S	C12S	C214S
Per Dozen	....	....	....
Length ... inches	16	16	16
Width ... inches	14	16	14
Space Between Tines ... inches	1¼	1	¾
Weight ... pounds	86	98	100
No. **170**, Repair Handle ... per dozen			....

Eversharp Rotary Power Lawn Mowers

Trimmer Type

No. 110 Ranger

No. 95 Deluxe

No. 105 Comet

Cutting height is adjustable from ¾ to 2¾ inches. Two-piece tubular steel handle. Mulching type, precision ground, tool steel blade. Four easily propelled ball-bearing wheels. Semi-pneumatic tires. Heavy gage, unbreakable steel housing.

Baked-on enamel finish. Packed 1 in a carton.

No. 110 Ranger. Has 21-inch cut. Furnished with 2-horsepower, 4-cycle engine with automatic retrievable starter. Front wheel chain drive. Slip type blade clutch is automatic to protect crankshaft. Manual traction clutch. Wheel size, 8 inches. Furnished with leaf mulcher.

No. **110**; Shipping Weight, 73 Pounds.........each **$143.50**

No. 95 Deluxe. Has 21-inch cut. Furnished with 2-horsepower, 4-cycle vertical shaft engine with automatic retrievable starter. Automatic clutch. Furnished with leaf mulcher.

No. **95**; Shipping Weight, 64 Pounds...........each **$95.50**

No. 100 Comet. Has 18-inch cut. Furnished with 1¾-horsepower, 4-cycle engine. Clutch is automatic. Leaf mulcher is available at extra cost.

No. **100**; Shipping Weight, 62 Pounds..........each **$77.50**

No. 105 Comet. Has 18-inch cut. Furnished with ⅓-horsepower, 3450-rpm. electric motor. Reversing type handle, keeps cord out of path. U.L. approved overload protection. Automatic clutch. Leaf mulcher is available at extra cost.

No. **105**; Shipping Weight, 55 Pounds..........each **$64.95**

Eclipse Duo-Master 17-Inch Rotary Power Lawn Mowers

Cutting width, 17 inches. Designed for the average lawn. Briggs & Stratton 4-cycle engine develops 1.4 hp. at 3100 rpm.; 1.6 hp. at 3600 rpm. Cutter blade of special carbon steel.

Eclipse
Eclipse
Duo-Master 17

Fingertip throttle control. Floating natural grip, adjustable handle.

One-piece 14-gage stamping with welded reinforced construction. Sides and back extend to level of cut. Inner baffles control flow of air. Special suction and shearing action of the 45° angle cutting ends of the blade lifts the grass then whisks the clippings out of the side discharge chute, spreads clippings evenly. Guard raises out of way for heavy growth. Extra rugged steel housing can't crack or break. Staggered wheel arrangement permits cutting within a half inch on left side and front center.

Cutting height easily adjusted while in mowing position to 1, 1½, 2¼ and 3 inches.

Pull rope starter. Tank capacity, 1 quart.

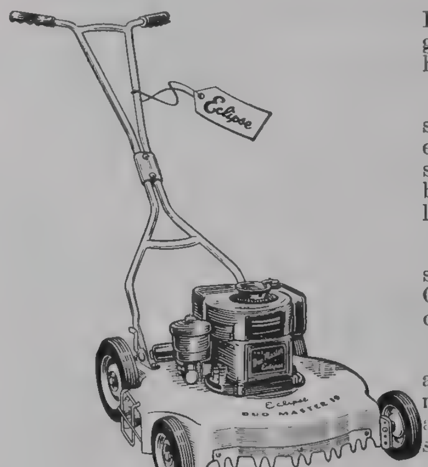
Wheels, welded pressed steel with two ball bearings in each hub. Tire size: front (staggered), 6 inchx1.50; rear, 8 inchx1.75.

Yellow and green weather resistant enamel finish.

Net weight, 48 pounds; shipping weight, 54 pounds.

Eclipse Duo-Master 19-Inch Rotary Power Lawn Mowers

Cutting width, 19 inches. Briggs & Stratton 4-cycle engine develops 2 hp. at 3600 rpm. Cutter blade of special carbon steel.



Throttle control. Floating natural grip, adjustable handle.

One-piece 14-gage stamping with welded reinforced construction. Sides and back extended to level of cut.

Hardened 45° shear cutting ends. Guard across front opening.

Staggered wheel arrangement permits cutting within a half inch on left side and front center.

Cutting height easily adjusted while in mowing position to 1, 1½, 2¼ and 3 inches.

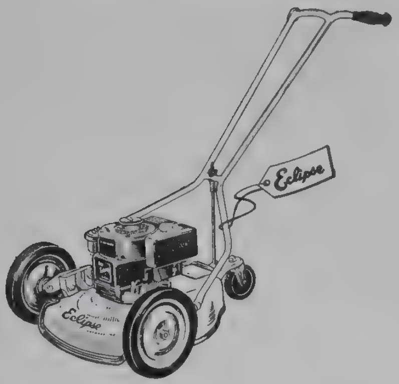
Pull rope starter. Tank capacity, 1 quart.

Wheels, welded pressed steel with two ball bearings in each hub. Tire size: front (staggered), 6 inchx1.50; rear, 8 inchx1.75.

Red and green weather resistant enamel finish.

Net weight, 53 pounds; shipping weight, 60 pounds.

Eclipse Century 20-Inch Rotary Power Lawn Mowers



Cutting width, 20 inches. Briggs & Stratton 4-cycle engine develops 1.87 hp. at 3100 rpm.; 2 hp. at 3600 rpm. Vertical shaft type.

Cutter blade of special hardened steel. Retains cutting edge for long periods. Easy to change. Floating natural grip, adjustable handle.

One-piece 14-gage welded reinforced construction. Extends down to level of cut.

Flexible shock absorbing coupling protects engine, crankshaft and blade. Minimizes both lateral and vertical thrust and shock. Bar guard across front removable for cutting exceptionally heavy or high growth.

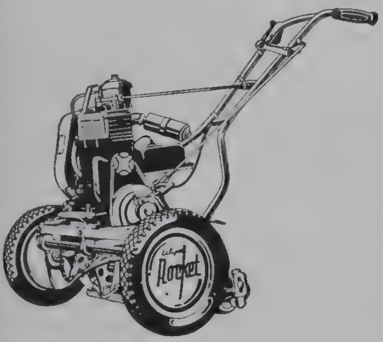
Cutting height adjustable from 1 to 3 inches by adjustment of wheels with mower in normal position.

Front wheels welded pressed steel with 2 ball bearings in each hub. Tire size, 10 inch x 1.75. Caster wheel, full 360° swivel. Ball bearing. Rubber tire, 6 inches.

Ivory and green all-weather enamel finish.

Net weight, 65 pounds; shipping weight, 74 pounds.

Eclipse Rocket Power Lawn Mowers



Designed for easy maintenance of small lawn areas.

Full 20-inch cut.

Equipped with 4-cycle Briggs & Stratton motor; has a quiet V-belt drive.

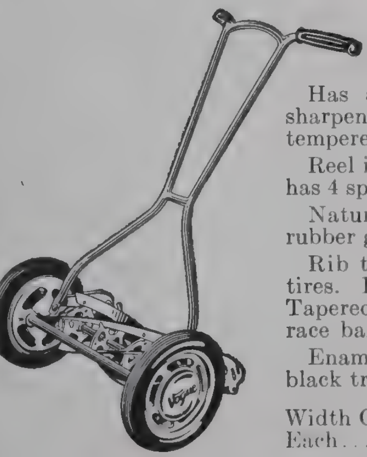
Rubber tires.

Timken bearing reel.

Eclipse, all-steel, natural, rubber grip handle.

Each	....

Eclipse Vogue Lawn Mowers



Has 5 blades, and Adams sharpener. Lower knife oil tempered, raised lip.

Reel is 6 inches in diameter; has 4 spiders.

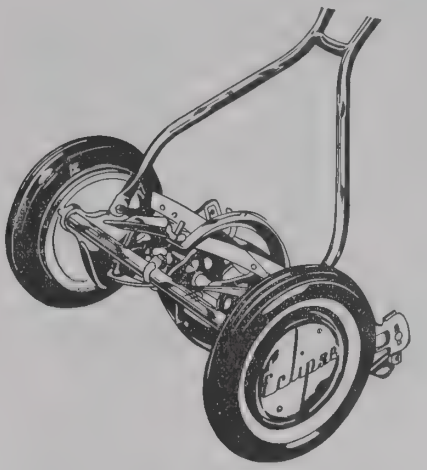
Natural all-steel handle has rubber grips.

Rib tread semi-pneumatic tires. Rubber covered roller. Tapered roller hangers. Full race ball bearings, adjustable.

Enameled yellow; blue and black trim.

Width Cut..inches	**16**	**18**
Each	....	....

Model L Eclipse De Luxe Lawn Mowers



Has finger-tip adjustment, five blades, six-inch diameter reel, precision ground ball bearings, solid steel wheel axle. Valveless puncture-proof rubber tires.

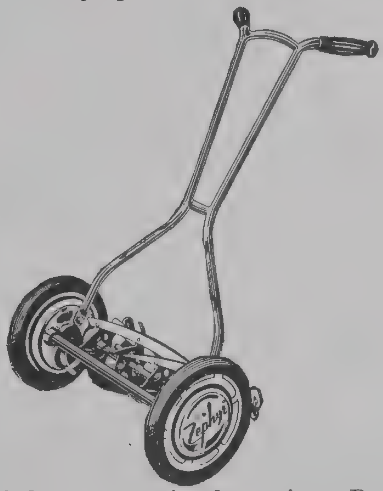
Rubber covered roller rotates on tapered bearings.

All steel handle, rubber grip.

Adjustable height of cut, ¾ to 1½ inches.

Cutting Width...inches	**16**	**18**
Model L...each	....	....

Zephyr Lawn Mowers



Has 5 blades; automatic sharpening. Puncture-proof valveless pneumatic tires. Natural grip all-steel handle.

Width Cut...inches	**16**	**18**
Each	....	....

Clemson Lawn Mowers

No.	**16**	E-17
Each	**$28.95**	**33.95**
Length Cut...inches	16	17
Shipping Weight...pounds	29	33

No. 1124 Fairbanks-Morse Portable Platform Scales

The pillar, cap and platform are made of alloy steel pressed to shape and reinforced, making very rigid and rust-resistant units.

The lever system is made heavy, with a large factor of safety.

All bearings are self-aligning. The loops, bearings, nose irons and weights are Parkerized rust-resistant, assuring long life with sustained accuracy.

The arrow-tip single beam, with center-indicating poise, is made of non-corrosive aluminum alloy.

Finished in blue, all well varnished.

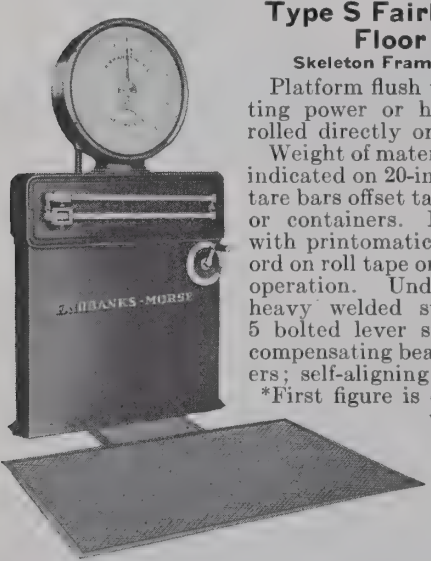
No. 1124 capacity, 1000 pounds; size platform, 18x27 inches (18-inch dimension is parallel with beam). Beam 100x½ pounds.

Shipping weight, 190 pounds.

No. **1124**..each .....

Type S Fairbanks-Morse Floor Scales

Skeleton Frame—Cabinet Dial



Platform flush with floor, permitting power or hand trucks to be rolled directly on it.

Weight of materials automatically indicated on 20-inch diam. dial. Two tare bars offset tare weight of trucks or containers. May be equipped with printomatic to produce a record on roll tape or ticket of weighing operation. Understructure has a heavy welded steel angle frame; 5 bolted lever stands, fitted with compensating bearings, support levers; self-aligning connections.

*First figure is dimension parallel with dial.

Total Cap. Lb.	Nos. *Platform Size, Inches 46x38	46x48	60x48	72x48	76x54
3250	**12143C7**	**12144C 7**	**12145C 7**	**12146C 7**	**12147C 7**
4250	....	**12144C 8**	**12145C 8**	**12146C 8**	**12147C 8**
5250	....	**12144C 9**	**12145C 9**	**12146C 9**	**12147C 9**
6250	....	**12144C10**	**12145C10**	**12146C10**	**12147C10**
6500	....	**12144C12**	**12145C12**	**12146C12**	**12147C12**

Total Cap. Lb.	Chart Cap. Lb.	No. Drop Wts.	Tare Beam, Lb. Main Bar	Fractional Bar
3250	2000x1	1	1000x200	250x1
4250	3000x1	2	1000x200	250x1
5250	4000x1	3	1000x200	250x1
6250	5000x1	4	1000x200	250x1
6500	4000x2	1	2000x500	500x2

Series 300 Hurd Bronze Padlocks

Pin-Tumbler Mechanism

One-piece solid bronze, lacquered case; and special process or extruded bronze shackle. Five pin-tumblers. Two hard rolled bronze keys; changes practically unlimited; can be master-keyed and grand master-keyed.

Locking bolt is firmly imbedded in toe of shackle, making it impossible to open lock by hammering or jarring. Weatherproof inside and out.

Packed 1 in a box, 6 in a carton.

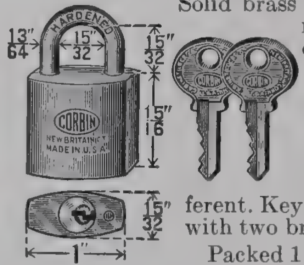
No.	Each	Size Case In.	Case Ht. In.	Shackle Material	Shackle Diam. In.	Shackle Clear. In.	Wt. Oz.
320A1	**$1.70**	1¼	1¼	Steel	¼	⅝	5
320B1	**1.70**	1¼	1¼	Bronze	¼	⅝	5
320C1	**1.70**	1¼	1¼	Steel	¼	1⅝	5½
325A1	**2.00**	1½	1⅜	Steel	9/32	11/16	6¾
325B1	**2.00**	1½	1⅜	Bronze	9/32	11/16	6¾
325C1	**2.00**	1½	1⅜	Steel	9/32	1 11/16	7¼
325D1	**2.00**	1½	1⅜	Bronze	9/32	1 11/16	7¼
325F1	**2.00**	1½	1⅜	Bronze	¼	4	8
330A1	**2.30**	1¾	1½	Steel	5/16	⅞	8½
330B1	**2.30**	1¾	1½	Bronze	5/16	⅞	8½
330C1	**2.30**	1¾	1½	Steel	5/16	1⅞	9¼
330D1	**2.30**	1¾	1½	Bronze	5/16	1⅞	9¼
335A1	**2.60**	2	1⅝	Steel	⅜	1 1/16	11
335B1	**2.60**	2	1⅝	Bronze	⅜	1 1/16	11
335F1	**2.60**	2	1⅝	Bronze	⅜	3	16

When ordering 9-inch retainer chain, add B to any number shown above. For keyhole cover and retainer chain, add letter C. Furnished at additional charge.

Corbin Solid Brass Padlocks

Pin Tumbler

No. 900



Size, 1 inch.

Solid brass case, machined out to receive mechanism; satin finish Height of case, 15/16 inch.

Hardened steel shackle, cadmium plated. Diam., 13/64 inch.

Height of opening, 15/32 inch.

Number of pin tumblers, 4.

Regular key changes, all different. Key blank, No. 4197¼A. Furnished with two brass keys to each lock.

Packed 1 in a box, 6 in a carton.

Weight per dozen, 2⅛ pounds.

No. 902

Size, 1⅜ inches.

Solid brass case, machined out to receive mechanism; lacquered brass satin finish. Height of case, 1¼ inches.

Hardened steel shackle, cadmium plated. Diameter, 17/64 inch.

Height of opening, 21/32 inch. Number of pin tumblers, 4.

Regular key changes, all different. Key blank, No. 8632. Furnished with two brass keys to each lock.

Packed 1 in a box, 6 in a carton.

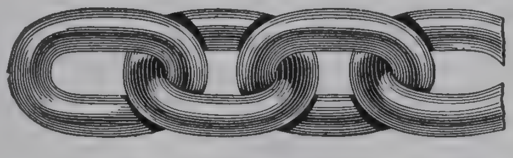
Weight per dozen, 4 pounds.

MATERIAL NOT LISTED

We can furnish many items not listed in this catalog.

Please send us all your inquiries.

B B B Coil Chain

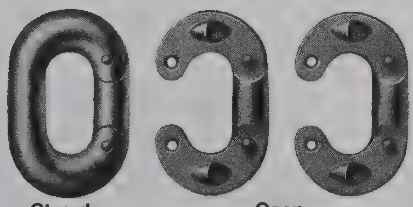


B B B grade is a close link carefully made and tested. Flexible, strong and durable. May be used for ordinary lifting. Furnished in self-colored or hot galvanized finish. Welded steel chain.

Packed in continuous lengths in barrels containing approximately 1,000 pounds. Also furnished in short pieces with attachments or made from merchant bar iron on specific orders.

Size Chain Inches	Size Material Inches	Inside Length Inches	Inside Width Inches	Links per Foot	Weight Pounds per 100 Feet	Average Breaking Test Pounds	Proof Test Pounds	Safe Working Load Pounds
3/16	7/32	25/32	3/8	15½	43	2600	1300	650
1/4	9/32	55/64	7/16	14	78	4500	2250	1125
5/16	11/32	1	1/2	12	115	6800	3400	1700
3/8	13/32	1 3/32	5/8	11	166	9300	4650	2325
7/16	15/32	1 7/32	11/16	9¾	220	12500	6250	3125
1/2	17/32	1 11/32	3/4	9	295	16500	8250	4125
9/16	19/32	1 9/16	3/4	7¾	350	20500	10250	5125
5/8	21/32	1 11/16	7/8	7⅛	430	25000	12500	6250
3/4	25/32	1⅞	1	6⅜	615	35400	17700	8850
7/8	29/32	2¼	1¼	5⅜	820	48000	24000	12000
1	1 1/32	2 9/16	1⅜	4¾	1045	62000	31000	15500
1⅛	1 5/32	2⅞	1⅝	4⅛	1310	78000	39000	19500
1¼	1 9/32	3 1/16	1¾	3⅞	1600	96000	48000	24000

American Drop-Forged Connecting Links



Used for temporary or permanent repairs, or for connecting attachments. Provided with interlocking lugs and rivets. For permanent connections the rivets should be headed into the countersinking of the holes. Will not open or spread and when riveted shut will develop a strength in excess of the corresponding size of chain.

Sizes 3/16 to ⅞-inch inclusive packed 12 in a carton, 1 to 1¼-inch packed in bulk.

Size Inches	Self-Colored per Dozen	Galv. per Dozen	Outside Dimensions Inches	Approx. Wt. Lb. per Dozen
*3/16	.....	.....	1¼x ¾	⅜
*1/4	.....	.....	1½x1	¾
*5/16	.....	.....	1¾x1¼	1⅜
3/8	.....	.....	2 x1⅜	2⅛
7/16	.....	.....	2⅜x1½	3⅛
1/2	.....	.....	2⅝x1¾	4½
9/16	.....	.....	3 x2	6½
5/8	.....	.....	3¼x2⅛	9
3/4	.....	.....	3⅞x2½	14
7/8	.....	.....	4½x3	23
1	.....	.....	4⅞x3⅜	34
1⅛	.....	.....	5½x3¾	46
1¼	.....	.....	6 x4¼	61

*Interlocking lugs are omitted in these sizes.

No. S-330 Laughlin Clevis Grab Hooks

A rugged, heat-treated steel forging with a jaw that can be attached to the end link of any chain by merely inserting the flat-head pin and cotter.

No need for additional fittings of any kind between chain and hook. No cutting, bending or rewelding the chain to fit into the hook.

Easily and quickly changeable to other jobs by reversing the fastening operation.

Housing protects workers from projecting cotter pin.

Size...in	1/4	5/16	3/8	7/16	1/2	5/8
Each....	$.50	.60	.76	.90	1.26	1.80

No. S-331 Laughlin Clevis Slip Hooks

Made from drop forged steel, heat treated.

Special housing protects end of pin and cotter.

Crimped style cotter easily removed with pliers or screwdriver for attachment.

Size Chain In.	Each	Safe Load Lb.	Safe Load —Chain, Lb.— Proof Coil	BBB	Est. Wt. Lb.
1/4	$.50	1900	900	1125	.6
5/16	.60	2400	1360	1700	.8
3/8	.76	2900	1860	2325	1.1
7/16	1.26	4700	2500	3125	2.5
1/2	1.26	4700	3300	4125	2.5

No. 2 Grab Hooks

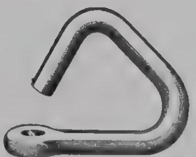
Size Chain Inches	Diam. Eye Inches	Wt. Lb. per 100 Pieces	Size of Chain Inches	Diam. Eye Inches	Wt. Lb. per 100 Pieces
1/4	7/16	25	5/8	1 3/32	355
5/16	35/64	45	3/4	1 5/16	685
3/8	21/32	75	7/8	1 17/32	1190
7/16	49/64	125	1	1¾	1940
1/2	7/8	190	..	...	....

No. 1 Slip Hooks

Size Chain Inches	Diam. Eye Inches	Wt. Lb. per 100 Pieces	Size of Chain Inches	Diam. Eye Inches	Wt. Lb. per 100 Pieces
1/4	15/32	36	1/2	23/32	160
5/16	17/32	57	5/8	27/32	250
3/8	19/32	80	3/4	31/32	375
7/16	21/32	125	..	..	...

Prices upon application.

No. 1 Cold Shuts
Self-Colored



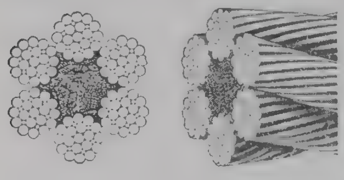
Made from regular chain material.

Size In.	Per 100	Inside Length In.	Inside Width In.	Approx. Weight Pounds per 100
3/16	....	3/4	11/32	3
1/4	....	13/32	13/32	6
5/16	....	1 3/32	7/16	10
3/8	....	1 5/16	9/16	18
7/16	....	1⅜	5/8	27
1/2	....	1 7/16	11/16	38
5/8	....	2	7/8	84
3/4	....	2⅜	1	140
7/8	....	2¾	1¼	230
1	....	3	1⅜	350
1⅛	....	3½	1⅝	520
1¼	....	3¾	1¾	650

USS American Tiger Brand Wire Rope

Monitor Steel—Type N Standard Hoisting Rope

6 Strands—19 Wires to the Strand—1 Fiber Core



Standard hoisting means rope composed of 6 strands, 19 wires to strand. Wires being small, rope is flexible and can be readily passed around sheaves and drums of moderate size. With sheaves and drums of moderate size, rope gives long service.

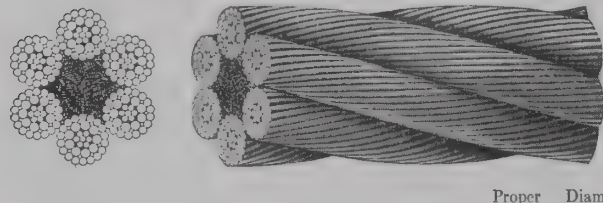
Diam. In.	Per Foot	Approx. Circum. Inches	Approx. Wt., Lb. per Foot	Breaking Strength Tons of 2000 Lb.	Proper Working Load in Tons of 2000 Lb.	Diam. Drum or Sheave in Feet Advised
2¾	....	8⅝	12.10	292.0	See Explanatory Note	See Explanatory Note
2½	....	7⅞	10.	244.0		
2¼	....	7⅛	8.10	200.0		
2⅛	....	6⅝	7.23	179.0		
2	....	6¼	6.40	160.0		
1⅞	....	5⅞	5.63	141.0		
1¾	....	5½	4.90	124.0		
1⅝	....	5⅛	4.23	107.0		
1½	....	4¾	3.60	92.0		
1⅜	....	4⅜	3.03	77.7		
1¼	....	3⅞	2.50	64.6		
1⅛	....	3½	2.03	52.6		
1	....	3⅛	1.60	41.8		
⅞	....	2¾	1.23	32.2		
¾	....	2⅜	.90	23.8		
⅝	....	2	.63	16.7		
9/16	....	1¾	.51	13.5		
½	....	1⅝	.40	10.7		
7/16	....	1⅜	.31	8.27		
⅜	....	1⅛	.23	6.10		
5/16	....	1	.16	4.26		
¼	....	¾	.10	2.74		

Extra for galvanized ropes; however this will lower the breaking strength by about 10 per cent. Ropes or independent wire rope center (any construction) also available at added cost. Wire rope center will increase the breaking strength by about 7½ per cent and the weights by 10 per cent.

USS American Tiger Brand Wire Rope

Monitor Improved Plow Steel Hoisting Rope

6 Strands—27-49 Wires to the Strand—1 Fiber Core



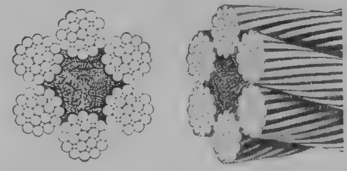
Diam. In.	Per Foot	Approx. Circum. Inches	Approx. Wt., Lb. per Ft.	Breaking Strength in Tons of 2000 Lb.	Proper Working Load in Tons of 2000 Lb.	Diam. Drum or Sheave Feet Advised
3½	....	11	19.00	449.00	See Explanatory Note	See Explanatory Note
3¼	....	10¼	16.37	390.00		
3	....	9⅜	13.95	335.00		
2¾	....	8⅝	11.72	284.00		
2½	....	7⅞	9.69	236.00		
2¼	....	7⅛	7.85	193.00		
2⅛	....	6⅝	7.00	173.00		
2	....	6¼	6.20	154.00		
1⅞	....	5⅞	5.45	136.00		
1¾	....	5½	4.75	119.00		
1⅝	....	5⅛	4.09	103.00		
1½	....	4¾	3.49	87.90		
1⅜	....	4⅜	2.93	74.10		
1¼	....	3⅞	2.42	61.50		
1⅛	....	3½	1.96	50.10		
1	....	3⅛	1.55	39.80		
⅞	....	2¾	1.19	39.60		
¾	....	2⅜	.87	22.60		
⅝	....	2	.61	15.80		
9/16	....	1¾	.49	12.90		
½	....	1⅝	.39	10.20		
7/16	....	1⅜	.30	7.82		
⅜	....	1⅛	.22	5.77		
5/16	....	1	.16	4.03		
¼	....	¾	.10	2.59		

Additional cost for galvanized ropes; however this will lower the breaking strength by about 10 per cent. Ropes with independent wire rope core (any construction) also available. Wire rope core will increase the breaking strength by about 7½ per cent and weight by 10 per cent.

USS American Tiger Brand Wire Rope

Elevator Rope

6 Strands—16-26 Wires to the Strand—1 Fiber Core



The iron and traction steel grades are commonly used on passenger and freight elevators. The rope is very flexible, and can be readily passed around sheaves and drums of moderate size.

Iron Grade

Elevator Compensation and Governor Ropes

Diam. Inches	Per Foot	Circum. Inches	Approx. Wt., Lb. per Foot	Breaking Strength Tons of 2000 Lb.	Proper Working Load in Tons of 2000 Lb.	Diam. Drum or Sheave in Feet Advised
1	....	3⅛	1.60	16.0	See Explanatory Note	See Explanatory Note
⅞	....	2¾	1.23	12.4		
¾	....	2⅜	.90	9.1		
⅝	....	2	.63	6.4		
9/16	....	1¾	.51	5.3		
½	....	1⅝	.40	4.2		
7/16	....	1⅜	.31	3.2		
⅜	....	1⅛	.23	2.5		
5/16	....	1	.16	1.6		
¼	....	¾	.10	1.1		

Traction Steel Grade

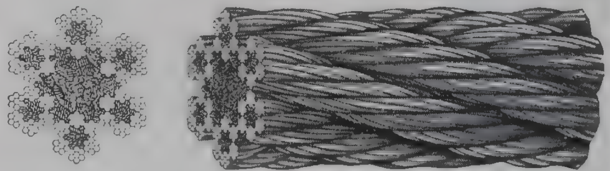
Elevator Hoist and Counterweight Ropes

Diam. Inches	Per Foot	Circum. Inches	Approx. Wt., Lb. per Foot	Breaking Strength Tons of 2000 Lb.	Proper Working Load in Tons of 2000 Lb.	Diam. Drum or Sheave in Feet Advised
1	....	3⅛	1.60	27.00	See Explanatory Note	See Explanatory Note
⅞	....	2¾	1.23	21.00		
¾	....	2⅜	.90	16.00		
⅝	....	2	.63	11.50		
9/16	....	1¾	.51	9.25		
½	....	1⅝	.40	7.25		
7/16	....	1⅜	.31	5.50		
⅜	....	1⅛	.23	4.10		

USS American Tiger Brand Wire Rope

Iron and Steel Tiller or Hand Rope

6 Strands—42 Wires to the Strand—7 Fiber Core



Tiller and hand are terms applied to rope composed of 6 strands of 42 wires each, each strand being a little wire rope in itself. This rope has 7 fiber cores, one large one in the center of the rope, and one little one in each of the 6 strands.

An exceedingly flexible rope, and is capable of being bent around small sheaves. However, it will stand little abrasive wear on account of fine wires of which it is composed.

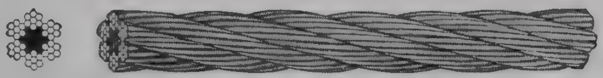
Used principally for signal pull purposes in mines and factories, and in connection with operating or controlling device on passenger and freight elevators.

Also used to a limited extent for steering lines on yachts and motor boats.

Diam. Rope In.	Iron per Foot	Plow Steel per Foot	Circum. In.	Approx. Breaking Strength in Tons —2000 Pounds Each—		Approx. Wt., Lb. per Ft.
				Iron	Plow Steel	
⅝	....	....	2	3.57	8.04	.43
9/16	....	....	1¾	2.9	6.53	.35
½	....	....	1⅝	2.3	5.18	.28
7/16	....	....	1⅜	1.77	3.98	.21
⅜	....	....	1⅛	1.3	2.93	.16
5/16	....	....	1	.908	2.05	.11
¼	....	....	¾	.584	1.31	.07

USS American Tiger Brand Sash Cord

6 Strands—7 Wires to the Strand—1 Fiber Core



Iron wire rope of 6 strands, 7 wires each, fiber core construction, in sizes ¼-inch diameter and smaller.

May be used for bell or whistle cords, on shades, etc.

Diameter In.	**Bright** per Ft.	**Galvanized** per Ft.	Wt. Lb. per Foot	Breaking Strength, Lb. Bright Hard Drawn Iron	Breaking Strength, Lb. Galv. Hard Drawn Iron
¼	....	....	.094	2040	1836
7/32	....	....	.072	1570	1413
3/16	....	....	.053	1150	1035
5/32	....	....	.038	840	756
⅛	....	....	.023	560	504
3/32	....	....	.013	315	283
1/16	....	....	.006	140	126

A 7-wire strand increases the breaking strengths listed above 7½ per cent, and adds approximately 10 per cent to the weights.

USS American Tiger Brand Aircraft Strand and Cord

Excellay Preformed—Tinned or Galvanized

19-Wire Strand

Diam. In.	Per 100 Ft.	Breaking Strength Pounds	Approx. Wt. Lb. per 1000 Ft.	Diam. In.	Per 100 Ft.	Breaking Strength Pounds	Approx. Wt. Lb. per 1000 Ft.
*1/32	......	185	2.5	5/32	......	3300	55
1/16	......	500	8.5	3/16	......	4700	77
5/64	......	800	14.0	7/32	......	6300	102
3/32	......	1200	20.0	¼	......	8200	135
7/64	......	1600	27.0	5/16	......	12500	210
⅛	......	2100	35.0	...	......	......	...

7x7 Construction

1/16	....	480	7.5	3/16	......	3700	62
5/64	......	650	11.	7/32	......	4800	83
3/32	......	920	16.	¼	......	6100	106
⅛	......	1700	28.	5/16	......	9200	167
5/32	......	2600	43.	...	......	....	...

7x19 Construction

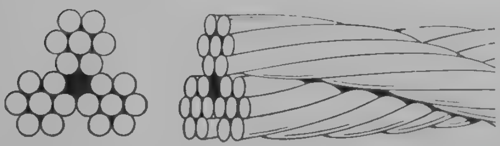
⅛	......	2000	29	9/32	......	8000	139
5/32	......	2800	45	5/16	......	9800	173
3/16	......	4200	65	11/32	......	12500	207
7/32	......	5600	86	⅜	......	14400	243
¼	......	7000	110	...	......	.....	..

*7-Wire.

USS American Highway Guard Rail Strand

Extra Galvanized

3 Strands—7 Wires to the Strand



Made according to the requirements of the state highway departments.

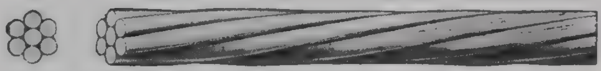
Galvanized by a special process so that each wire is properly protected with zinc.

Also made in other constructions such as 7x7.

USS Amerstrand Steel Wire Strand

Galvanized and Extra Galvanized

7 Wires Twisted into a Single Strand

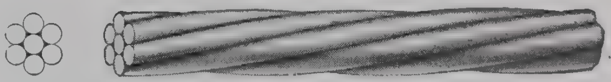


Used chiefly for guying poles and smokestacks or supporting trolley wires, and for operating railroad signals.

Diameter Inches	Per 100 Feet	Approx. Size Wire	Approx. Weight Pounds per Feet	Breaking Strength Pounds
⅝	......	.207	.813	11600
9/16	......	.188	.671	9600
½	......	.165	.517	7400
7/16	......	.145	.399	5700
⅜	......	.120	.273	4250
5/16	......	.104	.205	3200
9/32	......	.093	.164	2570
¼	......	.080	.121	1900
7/32	......	.072	.098	1540
3/16	......	.062	.073	1150
5/32	......	.052	.051	870
⅛	......	.041	.032	540

USS Amerstrand Extra Galvanized Special Steel Wire Strand

7 Wires Twisted into a Single Strand



Made in three grades, or strengths to meet all requirements for durability, strength, toughness and light weight; Siemens-Martin strand, high strength strand, and extra high strength strand.

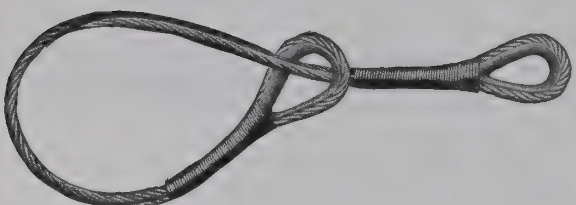
Siemens-Martin

Diameter Inches	Per 100 Feet	Approx. Size Wire	Approx. Weight Pounds per Foot	Breaking Strength Pounds
⅝	......	.207	.813	19100
9/16	......	.188	.671	15700
½	......	.165	.517	12100
7/16	......	.145	.399	9350
⅜	......	.120	.273	6950
5/16	......	.104	.205	5350
9/32	......	.093	.164	4250
¼	......	.080	.121	3150
3/16	......	.062	.073	1900
5/32	......	.052	.051	1470
⅛	......	.041	.032	910

High Strength and Extra High Strength

Diameter Inches	High Strength		Extra High Strength		Approx. Size Wire	Approx. Weight Pounds per Foot
	Per 100 Feet	Breaking Strength Pounds	Per 100 Feet	Breaking Strength Pounds		
⅝	......	29600	......	42400	.207	.813
9/16	......	24500	......	35000	.188	.671
½	......	18800	......	26900	.165	.517
7/16	......	14500	......	20800	.145	.399
⅜	......	10800	......	15400	.120	.273
5/16	......	8000	......	11200	.104	.205
9/32	......	6400	......	8950	.093	.164
¼	......	4750	......	6650	.080	.121
7/32	......	3850	......	5400	.072	.098
3/16	**$1.80**	2850	......	3990	.062	.073
5/32	......	2140	......	2940	.052	.051
⅛	**1.20**	1330	......	1830	041	.032

USS Tiger Brand Slipnoose Slings

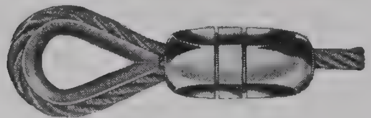


Can be furnished in many types made up in bridle and other forms. Also furnished in 6 and 8 part braided slings.

Prices upon application.

Safe Line Wire Rope Clamps

Listed by Underwriters' Laboratories



Closed

For use on high tensile strength wire rope.

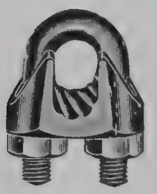
Holds any wire rope without slipping. Will not catch on clothing or mechanical apparatus. When thimbles are used they will not loosen and fall out.

Made in two halves. Inside of each half made to fit rope; large grooves pocket large spiral strands; small grooves pocket each small wire that makes up strands; large grooves hold rope from end wise slippage and small grooves prevent rope from spiral winding out of clamp. Every strand, every surface wire, contacts full length inner surface of clamp. Two halves are gripped tightly on rope with strong alloy steel nuts. Holding contact is firm and complete full length and circumference of clamp.

Diam. of Wire Rope Inches	Plain Forge Finish Each	Cadmium Plated Each	Dimensions, Inches — Overall Length	Flat	Point to Point of Hex. Size	Approximate Weight Pounds
1/16	$.92	$1.08	1 5/32	1/2	37/64	1/16
3/32	.99	1.12	1 5/32	1/2	37/64	1/16
1/8	1.00	1.16	1 3/4	5/8	23/32	1/8
5/32	1.08	1.24	1 3/4	5/8	23/32	1/8
3/16	1.15	1.36	2 1/4	13/16	15/16	5/16
7/32	1.24	1.44	2 1/4	13/16	15/16	5/16
1/4	1.35	1.60	2 1/2	1	1 5/32	1/2
5/16	1.67	1.95	2 3/4	1 1/4	1 7/16	7/8
3/8	2.16	2.48	3 1/4	1 3/8	1 19/32	1 1/8
7/16	2.68	3.11	3 5/8	1 5/8	1 7/8	1 3/4
1/2	3.40	3.84	4	1 7/8	2 11/64	2 1/2
5/8	4.91	5.36	4 5/8	2 1/4	2 19/32	4
3/4	6.40	6.96	5 3/4	2 5/8	3 1/32	6 1/2

Wire Rope Clips

Hot Galvanized

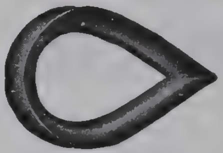


Light, durable, and easily applied.

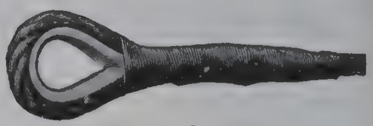
Drop forged.

Diam. Rope In.	Each	Diam. Rope In.	Each	Diam. Rope In.	Each
1/8	$.25	5/8	$.50	1 5/8	$3.13
3/16	.29	3/4	.70	1 3/4	4.83
1/4	.33	7/8	.99	2	6.52
5/16	.33	1	1.03	2 1/4	9.90
3/8	.37	1 1/8	1.20	2 1/2	10.73
7/16	.42	1 1/4	1.69	2 3/4	16.50
1/2	.42	1 3/8	2.23	3	23.10
9/16	.50	1 1/2	2.27	...	....

Galvanized Wire Rope Thimbles



Loose Thimble



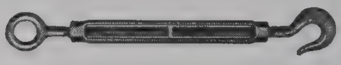
Attached Thimble

Light. Recommended for use with iron and mild plow steel ropes, galvanized guy strands and ropes, and stationary ropes.

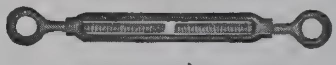
Heavy. Recommended for use with all material handling ropes, and all plow steel, and improved plow steel wire ropes.

For Rope Diameter In.	Light — Loose Each	Attached Each	Diam. of Largest Pin Thimble Will Take, In.	Approx. Wt. Lb.	Heavy — Loose Each	Attached Each	Diam. of Largest Pin Thimble Will Take, In.	Approx. Wt. Lb.
1/8	.....	.....	9/16	.025	.....	.....	...	.....
3/16	.....	.....	5/8	.03	.....	.....	...	.....
1/4	.....	.....	11/16	.05	.....	.....	13/16	.12
5/16	.....	.....	13/16	.07	.....	.....	15/16	.15
3/8	.....	.....	15/16	.08	.....	.....	1 1/16	.22
7/16	.....	.....	1	.14	.....	.....	1 3/16	.30
1/2	.....	.....	1 1/16	.17	.....	.....	1 7/16	.50
9/16	.....	.....	...	....	.....	.....	1 7/16	.50
5/8	.....	.....	1 1/4	.38	.....	.....	1 5/8	.75
3/4	.....	.....	1 1/2	.50	.....	.....	1 7/8	1.30
7/8	.....	.....	1 5/8	.62	.....	.....	2 1/8	1.60
1	.....	.....	1 7/8	1.05	.....	.....	2 3/8	2.80
1 1/8	.....	.....	2 3/8	2.81	.....	.....	2 3/4	4.50
1 1/4	.....	.....	2 5/8	3.00	.....	.....	2 3/4	4.50
1 3/8	.....	.....	...	....	.....	.....	3 3/8	7.50
1 1/2	.....	.....	2 7/8	3.15	.....	.....	3 3/8	7.50
1 5/8	.....	.....	...	....	.....	.....	3 7/8	11.75
1 3/4	.....	.....	3 3/8	5.50	.....	.....	4 3/8	18.00
1 7/8	.....	.....	...	....	.....	.....	4 7/8	22.00
2	.....	.....	4 3/8	7.50	.....	.....	5 7/8	30.00
2 1/8	.....	.....	...	....	.....	.....	6 7/8	52.00
2 1/4	.....	.....	...	....	.....	.....	6 7/8	52.00

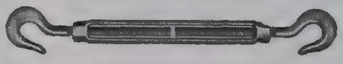
U-W Drop Forged Steel Weldless Turnbuckles



No. H-41—With Hook and Eye



No. H-43—With Eye and Eye



No. H-42—With Hook and Hook

Drop forged steel body with hexagon shaped heads, fitted with drop forged weldless eyes or drop-forged hooks.

Inside diameter of eye is equal to twice diameter of bolt.

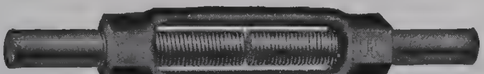
Thread Diam. In.	Open In.	*Overall Lgth. In.	Wt. Lb. per 100	Self Colored Each	Galv. Each	Thread Diam. In.	Open In.	*Overall Lgth. In.	Wt. Lb. per 100	Self Colored Each	Galv. Each
1/4	4	7 3/4	28	$.72	$.78	7/8	18	31	1000	$5.62	$6.81
5/16	4 1/2	9 3/8	46	.86	.92	7/8	24	37	1150	7.72	9.14
3/8	6	11 3/8	85	1.10	1.18	1	6	19 1/2	800	5.00	5.91
1/2	6	12 3/4	150	1.58	1.74	1	12	25 1/2	1075	5.44	6.63
1/2	9	15 3/4	190	2.16	2.46	1	18	31 1/2	1350	7.08	8.62
1/2	12	18 3/4	245	2.54	3.00	1	24	37 1/2	1600	8.62	10.53
5/8	6	14 3/8	258	1.78	2.10	1	36	49 1/2	2175	13.06	15.68
5/8	9	17 3/8	310	2.36	2.91	1 1/8	18	34 3/8	1800	8.74	10.71
5/8	12	20 3/8	380	2.82	3.45	1 1/4	12	30 3/8	1807	9.44	11.36
5/8	18	26 3/8	500	3.93	4.58	1 1/4	18	36 3/8	2150	11.80	14.10
3/4	6	16 3/4	395	2.54	3.00	1 1/4	24	42 3/8	2550	14.98	18.30
3/4	9	19 3/4	450	3.09	3.81	1 1/4	36	54 3/8	3250	22.22	27.44
3/4	12	22 3/4	550	3.63	4.46	1 1/2	12	33	2925	14.07	17.25
3/4	18	28 3/4	665	5.00	5.94	1 1/2	18	39	3450	17.25	21.15
3/4	24	34 3/4	820	6.28	7.84	1 1/2	24	45	3950	21.96	26.68
7/8	12	25	825	5.00	5.91	1 1/2	36	57	4975	32.67	39.21

*Length shown for hook and eye. Length for hook and hook slightly larger. Length for eye to eye slightly less.

U-W Drop Forged Weldless Turnbuckles

Hexagon Heads—Self-Colored

Right and Left Hand National Coarse Series Thread, Class 2 Fit.



Size Stub In.	Size Opens In.	Lgth. Head In.	Lgth. Over-all Closed In.	Stub Pro-jects In.	Breaking Strgth. at Thread Root Lb.	No. H-31-S Without Stubs Each	No. H-31-S Without Stubs Wt., Lb. per 100	No. H-32-S With Stubs Each	No. H-32-S With Stubs Wt., Lb. per 100
1/4	4	7/16	9	2 1/16	1560	$.44	13	$.70	25
5/16	4 1/2	1/2	11	2 3/4	2700	.46	20	.75	46
3/8	6	9/16	13	2 15/16	4080	.52	42	.92	78
1/2	6	3/4	14	3 1/4	7560	.60	65	1.00	138
1/2	9	3/4	17	3 1/4	7560	.99	90	1.60	175
1/2	12	3/4	20	3 1/4	7560	1.28	120	2.10	225
5/8	6	7/8	15	3 5/8	12120	.70	98	1.20	223
5/8	9	7/8	18	3 5/8	12120	1.16	135	1.95	290
5/8	12	7/8	21	3 5/8	12120	1.36	158	2.28	320
5/8	18	7/8	27	3 5/8	12120	1.96	243	3.24	450
3/4	6	1 1/16	16	3 15/16	18120	1.00	145	1.66	328
3/4	9	1 1/16	19	3 15/16	18120	1.48	184	2.46	405
3/4	12	1 1/16	22	3 15/16	18120	1.74	235	2.82	481
3/4	18	1 1/16	28	3 15/16	18120	2.48	325	4.12	625
3/4	24	1 1/16	34	3 15/16	18120	3.45	425	5.67	760
7/8	6	1 7/32	17	4 1/4	25140	1.18	185	2.00	450
7/8	12	1 7/32	23	4 1/4	25140	2.07	302	3.45	670
7/8	18	1 7/32	29	4 1/4	25140	2.97	475	4.90	920
7/8	24	1 7/32	35	4 1/4	25140	4.10	543	6.76	1140
1	6	1 3/8	18	4 5/8	33060	1.48	260	2.46	632
1	12	1 3/8	24	4 5/8	33060	2.56	402	4.17	890
1	18	1 3/8	30	4 5/8	33060	3.63	545	6.00	1125
1	24	1 3/8	36	4 5/8	33060	5.04	685	8.40	1422
1 1/8	6	1 9/16	19	5	41640	1.90	354	3.18	790
1 1/8	12	1 9/16	25	5	41640	3.20	660	5.30	1190
1 1/8	18	1 9/16	31	5	41640	4.58	910	7.56	1490

Larger sizes available, write for data.

U-W Shackles

Drop Forged Steel

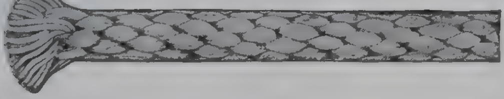
No. H-101, Round Pin Anchor
No. H-102, Screw Pin Anchor
No. 111, Round Pin Chain
No. H-112, Screw Pin Chain

No. H-101

No. H-112

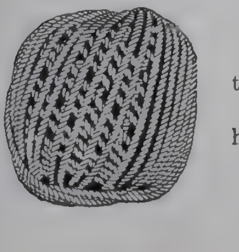
Size In.	Enam-eled Each	Galva-nized Each	Wt. Lb., Per 100 Anchor	Wt. Lb., Per 100 Chain
1/4	$.30	$.33	12	...
5/16	.33	.38	21	...
3/8	.39	.42	34	31
7/16	.48	.53	..	...
1/2	.58	.63	78	75
5/8	.87	.96	151	129
3/4	1.28	1.40	236	203
7/8	1.60	1.80	368	345
1	$2.28	$2.61	550	525
1 1/8	3.27	3.75	758	750
1 1/4	4.08	4.68	975	920
1 3/8	5.16	5.82	1410	1370
1 1/2	6.75	7.56	1875	1600
1 3/4	9.30	10.71	2955	2775
2	13.92	16.08	4135	3820

Aetna Sash Cord



A smooth white durable yarn cord, available in sizes 6 to 16. Put up in standard 100-foot hanks or coils of about 1200 feet each.

No. 9 Mason Chalk Lines



Made of high quality twisted cotton

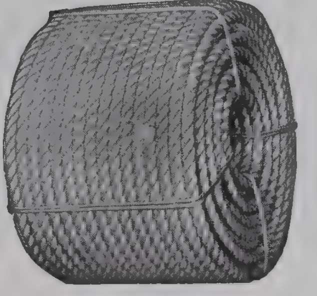
Available in balls and connected hanks, 100 feet in each.

Packed 12 in a box.

Prices on application.

H. & A. Blue Heart Pure Manila Rope

3-Strand



Meets U.S. government specifications.

Made of specially selected, high grade, pure, long fiber manila. Lubricated for wear and treated against water and weathering. Flexible and smooth running under all conditions. Blue Heart marker through center or heart.

Should not be subjected to working strain of more than one-fifth of the indicated tensile strength.

Prices upon application.

Size, Inches Diam.	Size, Inches Circum.	Tensile Strength Pounds	Approx. Length Full Coils Feet	Feet per Pound	Wt. Lb. per Ft.	Approx. Ship. Weight, Lb. Full Coils	Approx. Ship. Weight, Lb. Half Coils
3/16	5/8	450	3000	66.600	.015	45	....
1/4	3/4	600	2750	50.000	.020	55	28
5/16	1	1000	2250	34.500	.029	65	32
3/8	1 1/8	1350	1620	24.400	.041	66	33
7/16	1 1/4	1750	1200	19.000	.053	63	31
1/2	1 1/2	2650	1200	13.300	.075	90	45
9/16	1 3/4	3450	1200	9.610	.104	125	62
5/8	2	4400	1200	7.520	.133	160	80
3/4	2 1/4	5400	1200	6.000	.167	200	100
13/16	2 1/2	6500	1200	5.130	.195	234	117
7/8	2 3/4	7700	1200	4.450	.225	270	135
1	3	9000	1200	3.710	.270	324	162
1 1/8	3 1/2	12000	1200	2.780	.360	432	216
1 1/4	3 3/4	13500	1200	2.400	.418	502	251
1 5/16	4	15000	1200	2.090	.480	576	288
1 1/2	4 1/2	18500	1200	1.670	.600	720	360
1 5/8	5	22500	1200	1.340	.744	893	447
1 3/4	5 1/2	26500	1200	1.120	.895	1074	537
2	6	31000	1200	.930	1.080	1290	645
2 1/8	6 1/2	36000	1200	.800	1.250	1503	751
2 1/4	7	41000	1200	.685	1.460	1752	876
2 1/2	7 1/2	46500	1200	.600	1.670	2004	1002
2 5/8	8	52000	1200	.524	1.910	2290	1145
3	9	64000	1200	.414	2.420	2900	1450

Four-strand rope has approximately the same tensile strength as 3-strand but is about 5 per cent heavier.

H & A Package Display Coils

in. dia.
Blue Heart
manila rope

Rope is measured and marked every five feet.

Smaller sizes of the Blue Heart Manila and Red Heart Sisal rope, put up in colorful hexagonal packages that provide instantaneous eye-catching display.

Rope is drawn out through hole in center. Coils remain securely held.

Dimensions of carton, 15x13x6½ inches.

Approximately 20 pounds of rope in each coil.

Rope Diameter..........inches	1/4	5/16	3/8	7/16	1/2
Feet per Roll..................	1000	700	500	380	260

Standard Binder Twine

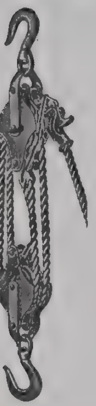
For use on binding machines. Strong, treated with special lubricant to minimize possibility of attack by insects.

Put up in bales, each containing ten 5-pound balls, or in bales, each containing six 8-pound balls.

Prices on application.

Singer Monarch Steel Hoists

For Manila Rope



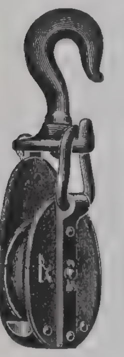
Nos. 34, 40

Prices are less rope; hoists shipped without rope unless otherwise specified.

No.	Each	No. of Sheaves Top	No. of Sheaves Below	Size Rope In.	Diam. Shve. In.	Approx. Tensile Str. Lb.	Rated Working Load Lb.	One Man can Lift Lb.	Ship. Wt. Lb.
32	$16.75	3	3	⅝–¾	4	7000	3000	700	14½
34	13.40	2	2	⅝–¾	4	6000	3000	500	11½
36	10.35	1	1	⅝–¾	4	5000	3000	350	9
38	8.20	3	3	⅜–⅝	3	3000	1500	600	7¼
40	6.65	2	2	⅜–⅝	3	3000	1500	400	6
42	5.20	1	1	⅜–⅝	3	2500	1500	200	4¾
44	4.95	2	2	⅜–½	2½	1500	1000	400	4
46	6.30	3	3	⅜–½	2½	1500	1000	500	5
48	3.85	1	1	⅜–½	2½	1200	800	200	3¼

No. 390 Anvil Brand Drop Link Steel Shell Snatch Blocks

Iron Bushed—For Manila Rope—Flattened Swivel Hook



Size Sheave Inches	No. 390-C Iron Bushed Each	No. 390-R Roller Bushed Each	No. 390-B Bronze Bushed Each	Diam. Rope In.	Lgth. Shell In.	Wt. Lb.
3 x1⅛x ½	$5.85	$6.20	$7.02	⅞	6	7
3½x1¼x ½	7.20	7.43	8.25	⅞	7	8
4½x1⅜x ⅝	8.10	9.08	9.90	1	8	13
5 x1⅜x ⅝	11.70	12.38	13.20	1⅛	9	15
5¾x1⅞x ¾	13.50	14.03	15.68	1¼	10	25
6¾x2⅛x ¾	18.90	20.63	22.28	1½	12	34
8 x2¼x ⅞	27.90	30.53	31.35	1¾	14	46
9 x2⅝x1	38.70	42.90	42.90	2	16	68

Anvil Brand Iron Sheaves

For Regular Pattern Manila Rope Blocks

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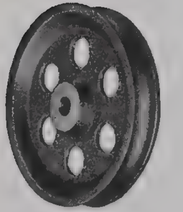
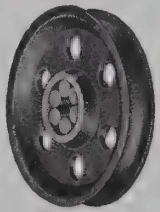
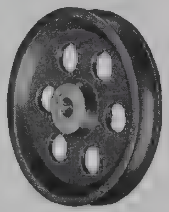


No. 1101, Common Iron Bushed



No. 1102, Patent Roller Bushed



No. 1103, Self-Lub. Bronze Bushed

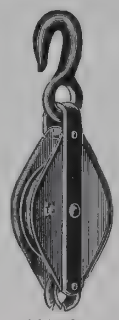
No. 1103 is recommended for heavy and rapid hoisting.

Size Sheave Inches	Rope Diam. Inches	For Block Inches	No. 1101 Iron Bushed Each	No. 1102 Roller Bushed Each	No. 1103 Bronze Bushed Each
1¾x ½x⅜	⅜	3	$.27	$.75	$1.20
2¼x ⅝x⅜	½	4	.39	.89	1.44
3 x ¾x⅜	⅝	5	.53	1.14	1.68
3½x1 x½	¾	6	.80	1.52	2.40
4¼x1 x½	⅞	7	.93	1.64	2.64
4¾x1⅛x⅝	1	8	1.32	2.27	3.24
5½x1⅛x⅝	1.	9	1.59	2.52	3.48
6¼x1¼x⅝	1⅛	10	2.12	3.03	3.96
8 x1⅜x¾	1¼	12	3.57	4.53	5.28

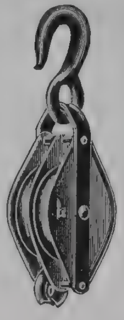
Anvil Brand Standard Steel Tackle Blocks

For Manila Rope

With Loose Side Hooks



No. 261, Single



No. 262, Double

No. 263, Triple

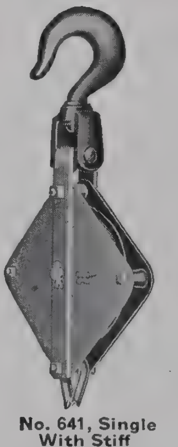
These blocks are lighter than wood blocks and equally strong. There is no danger of shells splitting. Shells have rounded edges to protect rope.

Lgth. Shell In.	For Diam. Rope In.	Iron Bushed No. 261-C Single Each	Iron Bushed No. 262-C Double Each	Iron Bushed No. 263-C Triple Each	Roller Bushed No. 261-R Single Each	Roller Bushed No. 262-R Double Each	Roller Bushed No. 263-R Triple Each	Self-Lubricating Bronze Bushed No. 261-B Single Each	Self-Lubricating Bronze Bushed No. 262-B Double Each	Self-Lubricating Bronze Bushed No. 263-B Triple Each
3	⅜	$1.29	$2.06	$2.81	$1.89	$3.05	$4.20	$2.94	$4.94	$6.93
4	½	1.41	2.27	3.14	2.00	3.36	4.73	3.05	5.25	7.46
5	⅝	1.62	2.60	3.57	2.31	3.89	5.46	3.26	5.67	8.09
6	¾	1.83	3.24	4.65	2.73	4.94	7.14	3.78	7.04	10.29
7	⅞	2.60	4.32	6.05	3.57	6.09	8.61	5.04	8.82	12.60
8	1	3.45	5.84	8.21	4.83	8.19	11.55	6.30	11.55	16.80
9	1	4.76	7.77	10.80	6.20	10.19	14.18	8.40	13.65	18.90
10	1⅛	6.69	10.37	14.04	8.40	13.13	17.85	10.50	17.33	24.15
12	1¼	11.88	18.36	24.84	13.65	21.00	28.35	15.75	25.20	34.65

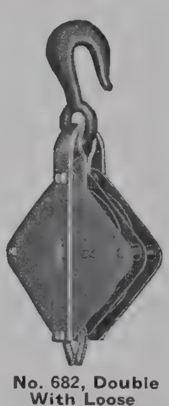
Anvil Brand Regular Diamond Pattern Tackle Blocks

For Wire Rope

Nos. 641, 642, 643 With Stiff Swivel Hooks
Nos. 681, 682, 683 With Loose Side Hooks
Nos. 651, 652, 653 With Shackles
Iron Sheaves, Self-Lubricating, Bronze Bushed



No. 641, Single With Stiff Swivel Hooks



No. 682, Double With Loose Side Hooks

No. 652, Double With Shackles

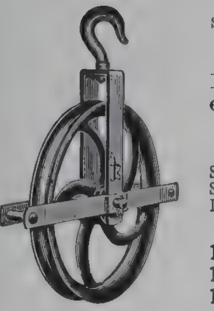
Shells of steel plate has edges ground smooth to protect the rope. Hooks and straps of best forging steel. Cold drawn steel center pins.

Size Sheave In.	Diam. Rope In.	Single Nos. 641-B Each	Single Nos. 681-B 651-B Each	Double Nos. 642-B Each	Double Nos. 682-B 652-B Each	Triple Nos. 643-B Each	Triple Nos. 683-B 653-B Each
6x1 x ¾	⅜	$10.80	$9.90	$18.90	$17.33	$27.00	$24.75
8x1¼x ⅞	½	14.40	13.20	22.50	20.63	30.60	28.05
10x1¼x ⅞	⅝	18.90	17.33	29.70	27.23	40.50	37.13
12x1½x1	⅝	27.00	24.75	42.30	38.78	57.60	52.80
14x1½x1⅛	¾	36.00	33.00	54.90	50.33	73.80	67.65

YALE & TOWNE PRODUCTS STOCKED IN FORT WAYNE ONLY

No. 350 Anvil Brand Gin Blocks

For Manila Rope



A light, well made block.

Hook, frame and pin are of forged steel and sheave of best gray iron.

Blocks can be supplied with either 8, 10, 12, or 14-inch diameter sheaves and either iron or roller bushed.

Size Sheave Inches	No. 350-C Common Bushed Each	No. 350-R Roller Bushed Each	No. 350-B Bronze Bushed Each	For Rope Diameter Inches	Approx Weight Pounds
8	$7.02	$8.10	$9.72	⅞	9
10	7.89	8.97	12.21	⅞ & 1	12
12	8.64	9.72	13.50	⅞ & 1	14
14	12.96	15.12	18.90	1	22

No. 940 Anvil Brand Snatch Blocks

For Wire Rope
Drop Link Pattern
With Drop Forged Swivel Hook

Has semi-circular guard pressed in shell over sheave to prevent wire slipping between shell and sheave.

Size Sheave In.	Rope Diam. In.	No. 940-C Iron Sheave Common Iron Bushed Each	No. 940-B Iron Sheave Bronze Bushed Self-Lubr. Each	No. 940-S Steel Sheave Bronze Bushed Self-Lubr. Each
6x1 x ¾	⅜–½	$9.08	$10.73	$13.62
8x1¼x ⅞	½–⅝	13.20	14.85	19.80
10x1¼x1	⅝	19.80	21.45	27.23
12x1½x1⅛	⅝–¾	29.70	31.35	40.85
14x1½x1¼	¾–⅞	39.60	41.25	51.98
16x1¾x1½	⅞–1	71.78	74.25	94.88
18x1¾x1½	1	100.65	103.13	121.70

No. 1173 Anvil Brand Iron Sheaves

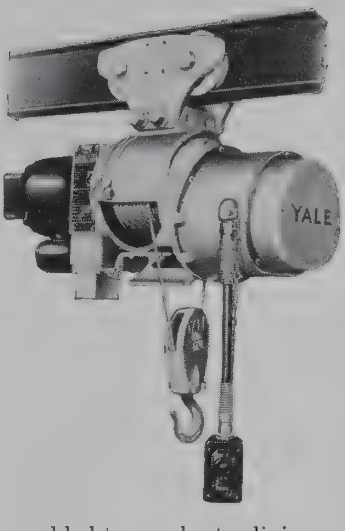
For Regular Pattern Wire Rope Blocks

Bronze Bushed

Size Sheave In.	Thick. at Hub In.	Rope Diam. In.	Each
3x ½x ⅜	½	¼	$1.92
3x ¾x ⅜	¾	⅜	2.28
4x ⅝x ½	11/16	5/16	2.64
4x ¾x ½	13/16	⅜	2.64
4x1 x ½	1 1/16	½	3.36
5x ⅞x ⅝	15/16	⅜	3.36
5x1 x ⅝	1 1/16	½	3.84
6x ¾x ⅝	⅞	⅜	3.84
6x1 x ¾	1 1/16	⅜	4.08
6x1 x ¾	1 1/16	½	4.08
6x1 x1	1 1/16	½	5.04
6x1¼x ¾	1 5/16	⅝	5.28
8x1 x ¾	1⅛	½	5.28
8x1¼x ⅞	1⅜	⅝	$6.48
10x1 x ⅞	1⅛	½	7.44
10x1¼x ⅞	1⅜	⅝	8.40
10x1¼x1	1⅜	⅝	8.64
10x1½x1	1⅝	⅝	9.60
10x1½x1¼	1⅝	⅝	11.28
12x1 x1	1⅛	½	9.12
12x1½x1	1⅝	¾	11.28
12x1½x1⅛	1⅝	¾	11.52
12x1½x1¼	1⅝	¾	11.76
14x1½x1⅛	1⅝	¾	15.60
14x1½x1¼	1⅝	¾	16.08
16x1¾x1¼	2	1	22.08

Yale Load King Electric Wire Rope Hoists

¼, ½ and 1-Ton Capacity



All units are regularly furnished for adaptation to provide lug or hook suspension, plain trolley with suspension parallel to I-beam, or plain trolley with suspension at right angles to I-beam.

Triple reduction hoist gear train. Gears are 20° full depth tooth, straight spurs with modified involute form. Drive shaft, gears and pinions are chrome nickel steel forgings, heat treated, hardened, ground. Oil tight housing.

Motor brake: Brake is external contracting drum type, fitted directly to main splined drive shaft. Brake shoes actuated by plunger-type solenoid; moulded type asbestos lining.

Automatic, self-acting, Weston screw-and disc-type load brake. Brake surfaces operate in continual oil wash.

Equipped with upper and lower safety limit stop, operating mechanically through interlock with the controller.

Enclosed safety type bottom block is alloy steel casting with rounded corners. Load sheave is a hardened steel forging with machine cut groove, mounted on precision type ball bearings. Swiveling, drop forged, heat treated load hook is mounted on ball thrust bearings. Sheave and hook ball bearings enclosed and sealed against dirt.

Enclosed cable drum has capacity to provide for a 10-foot lift without overlapping cable. Flanges prevent jamming. Simple, strong, universal type cable connections. Flexible plow steel hoist cable with hemp lubricated center with minimum safety factor of 27 to 1 on ¼-ton, 14 to 1 on ½-ton and 7 to 1 on 1-ton capacity hoist.

Double sealed, lifetime lubricated, ball bearings mounted directly on armature shaft. Drum mounted on ball bearings.

Push button type control equipment, single speed controls.

Heavy rolled steel plate trolley sides extend beyond wheel flange forming a bumper; removable and adjustable.

Forged steel wheels with hardened machined tread for smooth rolling. Each wheel has two precision ball bearings.

No.	Cap. Tons	*Speed FPM.	Lift Feet	Motor Hp.	Trolley In.	Net Wt. Lb.
PA¼G10L12	¼	12	10	¼	†4–12	147
PA¼G10L35	¼	35	10	½	†4–12	152
PA½G10L12	½	12	10	½	†4–12	152
PA½G10L25	½	25	10	¾	†4–12	157
PA½G10L35	½	35	10	1	†4–12	152
PA1 G10L12	1	12	10	¾	5–12	158
PA1 G10L16	1	16	10	1	5–12	153

*Hoist speeds for D.C. and 60 cycle A.C. For 25 or 50-cycle current, reduce speeds approximately 15 per cent.

†When ordering trolley for 4-inch I-beam please specify.

Prices

No.	110 or 220 Volts Single Phase 60-Cycle Each	110 or 220 Volts Single Phase 50-Cycle Each	110 or 220 Volts Single Phase 25-Cycle Each	115 or 220 Volts D.C. Each	220 440 550 V. 2 or 3-Phase 50 or 60-Cy. Each	220 or 440 Volts 2 or 3-Phase 25-Cy. Each
PA¼G10L12	$440.00	$440.00	$495.00	$495.00	$440.00	$495.00
PA¼G10L35	505.00	505.00	560.00	560.00	505.00	560.00
PA½G10L12	505.00	505.00	560.00	560.00	505.00	560.00
PA½G10L25	626.00	626.00	......	682.00	626.00	682.00
PA½G10L35	......	......	......	......	659.00	......
PA1 G10L12	648.00	648.00	......	704.00	648.00	704.00
PA1 G10L16	......	......	......	......	725.00	......

Extra for 20-foot lift hoist, with hoisting rope, push-button cord, anchor chain, $12.00. Add for steel ball-bearing I-beam trolley, $60.00 for all capacities. Add for top hook and adapter: to ¼-ton and ½-ton $11.00, 1-ton, $22.00.

Yale Midget King Electric Hoists

Standard Lift—10 Feet

A quick-lifting, lightweight, strong and durable hoisting unit. Permits close spotting of loads and no drift or slippage of load hook.

Gears are alloy steel, forged and hardened. Teeth cut and machined. Motor brake is mechanically interlocked with controller, totally enclosed. Brake adjustor is readily accessible. Automatic, self-acting, Weston screw and disc-type load brake. Motor and load brakes operate whether power is on or off.

Upper and lower safety limit stops operate directly on controller shaft and automatically and momentarily reverse motor in the event of overtravel of the hook.

Safety load hook drop forged from special steel is mounted on sealed ball bearings. Universal action, hook both swings and swivels and gives visual warning when overloaded.

Strong, lightweight, durable, high grade alloy steel roller chain.

Tru-guide chain stripper guides chain over load sprocket at uniform angle, stabilizes lifting action and prevents hoist vibration.

Precision ball bearings on all gearing and load sprocket. Sprocket bearings felt sealed.

Manual type hoist controller mounted on the end of the hoist frame where repairs or replacements may be made without dismantling the hoist. Mechanism utilizes the twin-break principle. Controller pull cord located for quick action. Has one-hand, bar-grip control.

MOTOR—Meets N.E.M.A. specifications. 1 phase, a.c. is capacitor type motor, eliminating brushes and commutator. 2 or 3 phase a.c. is squirrel cage type motor, totally enclosed, sealed sleeve bearings. D.C. motor is totally enclosed, sealed sleeve bearings. Motor wiring is totally enclosed. Plug reversal relay enclosed in conduit box. With 15-foot service cord.

All hoists are tested to 50 per cent overload. Recommended only for use with loads within rated capacity and warranty applies only up to the rated capacity.

Hook Type

No.	110 or 220 V., A.C. 50 or 60 Cy. Single Phase Each	110 or 220 V., A.C. 25 Cycles Single Phase Each	115 or 230 Volts D. C. Each	220 or 440 V., A.C. 50 or 60 Cy. 2 or 3 Ph. Each	220 or 440 V., A.C. 25 Cycles 3 Phase Each	*Speed FPM.	Motor Hp.	Net Wt. Lb.
⅛-Ton Capacity								
⅛E34H	$240.00	$270.00	$260.00	$240.00	$284.00	34	¼	81
¼-Ton Capacity								
¼E17H	$285.00	$305.00	$305.00	$285.00	$319.00	17	¼	81
¼E34H	338.00	370.00	358.00	338.00	370.00	34	½	84
½-Ton Capacity								
½E17H	$375.00	$407.00	$395.00	$375.00	$407.00	17	½	84
½E24H	395.00	......	420.00	395.00	431.00	24	¾	88
½E34H	......	......	......	410.00	......	34	1	82
1-Ton Capacity								
1E9H	$385.00	$417.00	$405.00	$385.00	$417.00	9	½	100
1E13H	395.00	......	430.00	405.00	441.00	13	¾	105
1E17H	......	......	......	425.00	......	17	1	105
2-Ton Capacity								
2E6½H	$505.00	......	$540.00	$515.00	$551.00	6½	¾	155
2E8½H	......	......	......	535.00	......	8½	1	155

Plain Trolley Type—Including Trolley

No.	110 or 220 V., A.C. 50 or 60 Cy. Single Phase Each	110 or 220 V., A.C. 25 Cycles Single Phase Each	115 or 230 Volts D. C. Each	220 or 440 V., A.C. 50 or 60 Cy. 2 or 3 Ph. Each	220 or 440 V., A.C. 25 Cycles 3 Phase Each	*Speed FPM.	Motor Hp.	Net Wt. Lb.
2-Ton Capacity								
2E6½P	$565.00	......	$600.00	$575.00	$611.00	6½	¾	185
2E8½P	......	......	......	595.00	......	8½	1	185

Extra Lift Including Chain and Control Cord

	—For Hoist Capacity, Tons—		
	⅛ to ¼	1	2
Per Foot	$2.50	4.50	9.00

Steel Ball Bearing I-Beam Trolleys—For Hook Type

Each	$24.40	28.50	64.40
Standard I-Beam Sizes........inches	4 to 8	4 to 9	.....

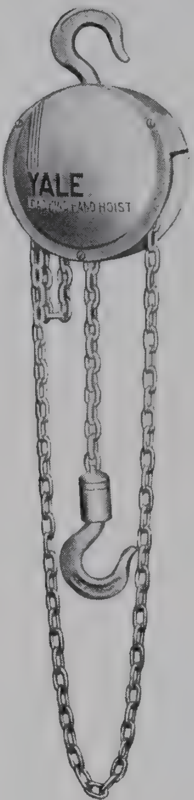
Chain container and electric cord suspension are available at extra cost.

*For d.c. and 60 cy. a.c. For 50 cy. current speeds reduced about 15 per cent. For 25 cy. current speeds reduced about 35 per cent.

Yale Load King Hand Hoists

Aluminum Alloy Housing

Spur Gear Reduction—½, 1, 1½, 2-Ton Capacity



Lightweight, compact for portability, low headroom; fast hoisting.

Has Synchro-matic load brake; instantaneous brake and release action; operates automatically and provides maximum brake diameter and area for a given hoist capacity.

Alloy steel, hardened load sheave and load chain. Hand chain guide and cover made of aluminum die casting enclosing handwheel. Handwheel made of one-piece high strength alloy casting.

Drop forged steel safety load hook; will open slowly, without fracture, before any other part of hoist is overstressed. Hook swivels; supported in bottom block on heavy duty ball thrust bearing with lifetime lubrication.

Steel forging safety top hook is heat treated to provide a rated strength four times that of hoist. Hook rotates freely within adapter.

Hoist mechanism has spur-gear reduction. Gears are alloy steel with cut teeth heat treated. Load gear is spline fitted to load sheave shaft.

Rated Cap......tons	½	1	1½	2
Each..............	**$108.**	**138.**	**184.**	**215.**
Travel of Lower Hook.........feet	8	8	8	9
Test Load ....long tons	¾	1½	2¼	3
Min. Distance between Hooks...in.	12¼	14	18	19
Weight..........lb.	36	41	62	73

Yale Differential Chain Hoists

¼ to 1½ Tons

The Yale Differential Chain Hoist is designed for service where comparatively light loads are handled occasionally. It consists of a pair of pocketed chain wheels above and a single wheel below. The endless chain passes over one upper sheave, down around the bottom and then over the other upper sheave. The two upper sheaves are in one piece and only vary enough in diameter to make a difference of one chain pocket in their circumferences.

The overhaul of hand chain is about the same as that of the Yale Spur-Geared chain hoist, but the hand chain pull required is about 2½ times as great. The hoist is light and easily handled, and where men are readily available for emergency or infrequent work it is desirable equipment. It holds the load securely and will lower only as the hand chain is pulled.

It has few parts, and on account of its reliability and simplicity is especially adapted for use in garages and for all ordinary hoisting purposes where the higher power and durability of the Yale Spur-Geared and Screw-Geared hoists are not required.

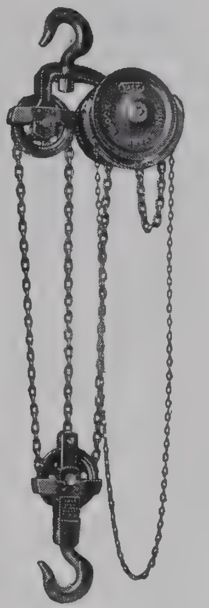
Rated Cap. Tons	Complete Standard Lift Each	Extra Lift per Foot	Std. Lift in Feet	Test Load in Long Tons	Chain Pull Lb.	Chain Pull Ft.	Net Wt. Lb.
¼	**$24.00**	**$6.00**	6	⅜	72	18	23
½	**28.00**	**6.00**	7	¾	110	24	30
1	**44.00**	**6.40**	8	1½	190	30	50
1½	**56.00**	**6.80**	8½	2¼	225	36	81

Yale Ball Bearing Spur-Geared Chain Hoists

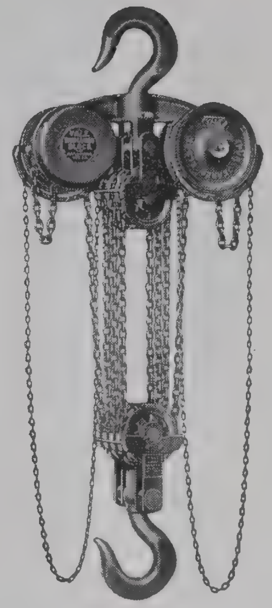
Capacity, 500 Pounds to 40 Tons

¼, ½, 1, 1½, and 2 Tons Model BB, and 3 Tons Model BS

3 & 4 Ton, Model B, B and 5 and 6 Tons Model BS



5, 6, 8, and 10 Tons Model BB



12, 16, 20, 25, and 30 Tons, Model BB, and 40 Tons Model BS

Hoist Mechanism is of the spur gear reduction, planetary system. Gears are mounted on bronze anti-friction bearings, oil duct lubrication. Gear pressure is so balanced that thrust is diametrically opposed, setting up a minimum of stress and initial high efficiency.

Suspension: All members in suspension are steel.

Load Brake is screw and disc type, self actuating, of ample area, with the ratio of brake pressure increasing in proportion to the increase in load.

Load Sheave on which the suspended load is lifted, is mounted on two ball bearings of the radial thrust type, using high carbon chrome alloy steel balls and chrome vanadium races. Bearings are enclosed with dustproof metal and felt oil retaining rings.

Load sheave bearing is ground concentric, with .001-inch working tolerance.

Driving pinion shaft is hardened and ground with .001-inch working tolerance, and revolves in bronze bushings in the load sheave. Gear and pinions have bronze bushings.

Yale Hooks are drop-forged steel. Hooks will open slowly without fracture under severe overload. This provides warning of danger, and permits depositing the load without injury to operator, to load, or to hoist mechanism. Free, easy, and universal movement is provided by swiveling on heavy duty ball bearings and swinging or rocking on a crosshead. Bearings are totally enclosed against dirt, dust, water, etc.

Yale Chain is made exclusively of steel. It is formed, welded, heat-treated, tumbled, and gaged by a controlled process that provides the following physical characteristics.

1. Chain having the necessary ductility and toughness to withstand heavy intermittent loads, and the characteristics whereby it will stretch before breaking.

2. Uniformity as to size, with all links gaged on master gages for accuracy of pitch and overall dimensions.

3. A minimum strength at the weld equal to the ultimate strength of the chain.

Drop-forged, 2-piece shackles with heat-treated suspension pin permits changing or replacing load chain without welding. Hand chain guide is continuous and adjustable which prevents fouling of hand chain.

Lubrication: Hoisting gears, oil and grease; bearings and brake, oil duct with ball valve dustproof oilers.

All hoists are tested to 50% overload. Recommended only for use with loads within rated capacity and warranty applies only up to the rated capacity.

Rated Capacity and Model Long Tons		**Complete Standard Lift Each**	Travel of Lower Hook Standard Lift Feet	**Extra Lift**			Standard Chain Length in Lineal Feet		Test Load in Long Tons	Minimum Distance Between Hooks Inches	Net Weight Pounds	Gross Weight Pounds	Chain Pull To Lift Full Load Pounds	Chain Overhauled to Lift Load One Foot in Feet	Hoisting Speeds Feet per Minute		
				Per Foot	Chain Feet Load	Chain Feet Hand	Load	Hand							Full Load	Half Load	Quarter Load
¼	BB	$115.00	8	$3.60	1	2	9′ 5″	16	⅜	12	62	75	47	12½	17	30	45
½	BB	115.00	8	3.60	1	2	9′ 5″	16	¾	12	62	75	57	21	8½	17	26
1	BB	148.00	8	3.80	1	2	9′ 5″	16	1½	15½	94	115	76	31	4¼	8.5	13
1½	BB	198.00	8	4.00	1	2	9′ 6″	16	2¼	18	136	170	103	35	5.1	10.2	15.3
2	BB	230.00	9	4.20	1	2	10′ 8″	18	3	21	204	244	112	42	3.9	7.8	11.7
3S	BS	300.00	10	5.20	1	2	11′10″	22	4½	23	269	324	102	77	2.5	5.0	7.5
3	BB	300.00	10	6.00	2	2	24	22	4½	32	212	260	107	70	2.5	5.0	7.5
4	BB	360.00	10	6.40	2	2	25	24	6	37	301	358	116	84	1.9	3.8	5.7
5	BB	460.00	12	8.60	3	2	44	29	7½	45	413	474	102	126	1.4	2.8	4.2
5D	BS	460.00	12	8.40	2	2	29	29	7½	34	388	461	90	154	1.4	2.8	4.2
6	BB	545.00	12	8.60	3	2	44	29	9	45	413	474	122	126	1.2	2.4	3.6
6D	BS	545.00	12	8.40	2	2	29	29	9	34	388	461	108	154	1.2	2.4	3.6
8	BB	660.00	12	10.80	4	2	58	30	12	49	502	578	127	168	.85	1.7	2.6
10	BB	790.00	12	13.00	5	2	72	30	15	52	612	702	132	210	.65	1.3	2.0
12	BB	1,145.00	12	17.20	6	4	93	*30	18	52	860	1,140	†122	†126	1.2	2.4	3.6
16	BB	1,430.00	12	21.60	8	4	117	*30	24	60	1,046	1,330	†127	†168	.85	1.7	2.6
20	BB	1,800.00	12	26.00	10	4	146	*30	30	62	1,230	1,530	†132	†210	.65	1.3	2.0
25	BB	2,000.00	12	26.00	10	4	146	*30	37½	62	1,250	1,550	†165	†210	.50	1.0	1.5
30	BB	3,500.00	12	34.80	14	4	194	*30	45	59	2,300	3,250	†170	†294	.3	.6	.9
40	BS	4,450.00	12	48.80	14	4	206	*30	60	79	5,200	6,500	†127	†539	.2	.4	.8

S—Single Chain. D—Double Chain. *Two hand chains. †For each hand chain.

Yale Screw-Geared Chain Hoists

Capacities, ½ to 3 Tons

For light jobs not demanding the higher speed and efficiency of a spur-geared hoist, this hoist will meet requirements. Essentially a hoist for riggers and for temporary and occasional service, as it may be readily moved to meet an emergency. Adaptable also to horizontal work when pulling heavy loads on rollers or skids. Compact worm gear design permits lifting loads in cramped places and close up to the ceiling. Light chain pull; with a 1-ton block, one man by pulling only 87 pounds, can lift 2000 pounds; however, large chain overhaul required proportionately slows operation.

Operating on a worm gear reduction, can be relied upon for smooth, dependable service. Self-actuating load break securely holds the load in any position and will not release it until hand chain is pulled.

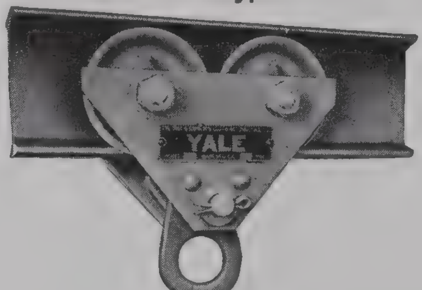
Safe and durable; light and portable; tested to 50 per cent overload, but recommended only for rated capacities.

Rated Cap. Tons	**Complete Each**	*Std. Lift Ft.	Min. Distance btwn. Hooks In.	Test Load Long Tons	Chain Pull to Lift Full Load Lb.	Chain Pull per 1-Ft. Lift Ft.	Wt. Lb.
½	**$97.00**	8	13¼	¾	68	40	46
1	**113.00**	8	16	1½	87	59	60
1½	**157.00**	8	19¼	2¼	94	80	82
2	**185.00**	9	21	3	115	93	105
3	**243.00**	10	25½	4½	132	126	188

*Figures denote height in feet which hoists with regular lengths of chain will lift from level on which operator stands.

Model H Yale Roller-Bearing Steel Trolleys

Plain Type



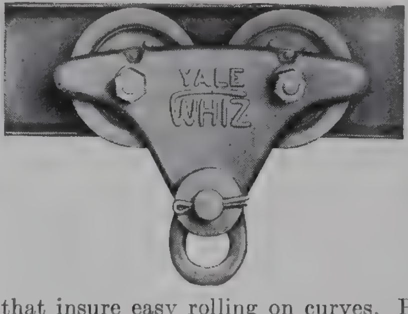
Constructed in 2 complete units, each side being an assembly consisting of trolley side plate, wheels, axles and bearings. Plane of wheels is perpendicular to flanges of I-beam track so that lines of force due to load intersect at point of suspension in eye of clevis and load is at all times equally distributed over the 4 wheels. Large diameter wheels with cylindrical chilled tread.

Equalizing pin, which connects the 2 trolley halves, may be easily removed, enabling trolley to be taken from track at any point or widened for larger beams. Carbon steel axles hardened and ground to a tolerance of .0005 in. Hyatt roller bearings. Alemite high pressure lubrication. Drop-forged steel clevis suspended from equalizing pin, up to 2-ton; heavy steel plate on larger sizes.

Capacity Tons	Each	Adjustment for I-Beams	Smallest Radius for Curve In.	Diameter Wheel Tread Inches	Direct Push to Start Fully Loaded Trolley Lb.	Net Wt. Lb.
¼	**$38.00**	4–5–6–7	18	3	9	17
½	**40.00**	5–6–7–8	21	3¾	12	27
1	**52.00**	6–7–8–9	21	4¾	25	43
1½	**81.00**	7–8–9–10	30	5½	33	72
2	**90.00**	8–9–10–12	36	6½	42	93
3	**115.00**	9–10–12–15	42	7¼	60	145
4	**150.00**	10–12–15–18	48	8¼	80	160
5	**200.00**	12–15–18–20	54	10	90	268

Yale Whiz Trolleys

Plain Type



A compact, light, and sturdy trolley designed for rugged, long lasting service.

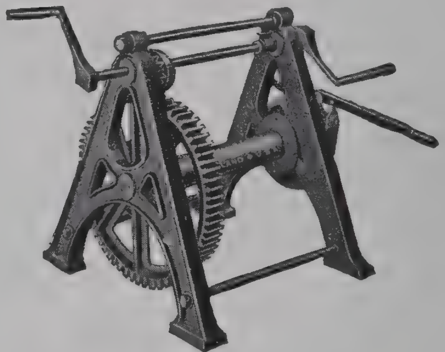
Side plates and clevis are drop forged steel, providing a high factor of safety.

Wheels are steel, carburized and hardened with extra large flanges that insure easy rolling on curves. Pressed with hairline accuracy and mounted on ball bearings which feature large diameter balls protected against the entry of dirt or grit. Due to flexibility of assembly between the side plates, loads are always evenly distributed on all wheels.

All parts are uniform and interchangeable. Readily adjustable to various widths of I-beams. Not recommended for flat flange beams. Where trolley is to be used on beams with flanges wider than standard minimum size, adjustment is made with spacing washers provided for that purpose. This adjustment can be made to suit a wide range of beam sizes. Special long pins and extra spacing washers can be supplied for adapting the trolley for beam sizes larger than the maximum standard specified.

Capacity........tons	**½**	**1**	**2**
Each................	**$23.00**	**27.00**	**50.00**
I-Beam Min. Size:			
Inches.............	4	4	6
Pounds............	7.7	7.7	12.5
Standard Adjustment for I-Beam...inches	4–5–6–7–8	4–5–6–7–8–9	6–7–8–9–10
I-Beam Max. Size..in.	10	12	24
Min. Radius Curve.ft.	1½	1¾	2½

David Round Single Purchase Iron Hoisting Crabs



Constructed for quick handling of light loads. Specify whether for wire rope or manila rope.

No.	Capacity, Pounds: Direct from Drum	Capacity, Pounds: Using 1 & 2-Sheave Blocks	Capacity, Pounds: Using 2 & 3-Sheave Blocks	Approx. Wt., Lb.: With Wire Rope Drum	Approx. Wt., Lb.: With Manila Rope Drum
1	900	2700	4500	290	270
2	1200	3600	6000	394	372
3	1800	5400	9000	460	415
4	2000	6000	10000	507	450
5	2400	7200	12000	600	550
6	2800	8400	14000	650	600

	Wire Rope Drum					**Manila Rope Drum**				
	Inside Length & Diam.	Rope Capacity Feet				Inside Length & Diam.	Rope Capacity Feet			
No.	Inches	⅜-In.	½-In.	⅝-In.	¾-In.	Inches	⅜-In.	½-In.	⅝-In.	¾-In.
1	10½x5	378	252	114	...	10¾x3½	135	110	...	...
2	9½x8	470	250	155	...	16¾x5	588	395	187	165
3	9½x8	470	250	155	...	16¾x5	588	395	187	165
4	13½x8	933	544	367	190	19½x5	...	379	223	197
5	15½x10	...	487	300	180	22 x6	1405	875	502	341
6	15½x10	...	487	300	180	22 x6	1405	875	502	341

CHISHOLM-MOORE HOISTS STOCKED IN SOUTH BEND ONLY

C-M Lodestar Electric Chain Hoists

Capacity, 250 to 2000 Pounds

CM
Lodestar
CM

A portable heavy duty type with push button control.

Special instantly reversing squirrel cage induction type 30 minute rated motor will avoid dangerous overloads. Quick change dual voltage. Only 115 volts at shock proof plastic push button station.

Self-adjusting, quick acting heavy duty brake.

Top hook may be made rigid by substituting a square collar for the round collar and thrust washer at $2.00 extra. For rigid lug suspension add $2.50 to Models A, AA, B, C and F; $3.00 to Models E and H. Required for attaching hoist to tandem trolley.

With Swivel Hook Suspension, Standard 10-Foot Lift and 15 Feet of Power Cable

No.	110-115 V. 1 Phase 60 Cy. Each	208-220/440 V. 3 Phase 60 Cy. Each	Capacity Lb.	Motor Hp.	Lifting Speed FPM.	Min. Head-room In.	Net Wt. 1-Phase Models Lb.
A	$149.50	$167.00	250	¼	32	14½	51
AA	198.00	217.00	250	½	60	14½	57
B	178.00	192.00	500	¼	16	14½	51
C	198.00	217.00	500	½	32	14½	59
E	208.00	225.00	1000	¼	8	18	61
F	228.00	242.00	1000	½	16	14½	60
H	238.00	252.00	2000	½	8	18	68

When ordering, specify model, capacity, current, type suspension, length lift, extra push button cord, length power cord or type current collector.

CM Blue Boy Differential Hoists

For the large or small shop where lifting and moving of heavy loads is an infrequent operation and where speed is not essential.

Built of fine materials and equipped with Hercules Inswell Electric Welded Chain. Light weight permits it to be carried easily when necessity requires.

Sheaves are accurately machined to prevent binding and permit easy operation. Chain pockets are formed to prevent undue wear on chain links.

Frames are made of extra heavy malleable iron.

The heavy sheaves, malleable iron yokes and drop-forged hook are painted blue and the chain is copper-plated.

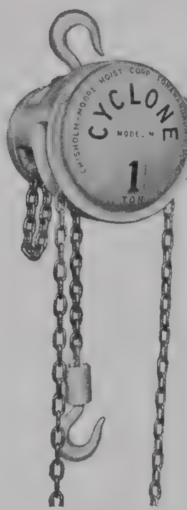
The electrically welded chain is heat treated. It's formed links fit accurately into the chain pockets of the sheave wheel assuring minimum friction and wear.

Cap. Tons	Each	*Extra Lift per Foot	Will Lift Feet	Reg. Chain Lineal Feet	Feet of Chain Handled to Lift Load 1 Ft.	†Pull in Pounds	Shortest Dist. Bet. Hooks In.	Ship. Wt. Lb.
¼	$22.00	$4.20	6	22	18	64	17	23
½	26.00	4.20	7	26	24½	102	21	31
1	41.00	4.65	8	30	29½	190	26	51
1½	52.00	4.90	8½	32	35½	243	32	92
2	78.00	6.40	9	34	38	314	38	152

*Each foot of extra lift includes 4 lineal feet of chain.
†Pull on hand chain to lift full load.

CM Cyclone Model M High Speed Chain Hoists

With CM-Alloy Chain



¼ to 1 Ton

A high speed, spur-geared portable chain hoist suitable for practically all applications.

Strong, rugged, one-piece frame made of steel and aluminum alloy. Handwheel, handwheel cover, and gear cover made of aluminum alloy castings.

Double duty chain made of alloy steel; flexible, cannot kink or be bent or strained in attaching to load.

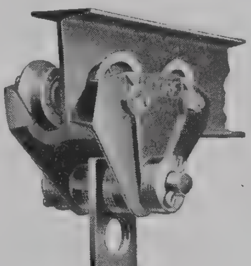
Gears made of high grade, heat-treated steel.

Equipped with replaceable load chain guide for proper seating of each link of load chain on lift wheel; a steel forging, carburized for long wear.

Cap. Tons	Each	*Extra Chain Foot of Lift	Std. Lift Ft.	Chain Pull to Lift Cap. Loads Lb.	Lgth. Hand Chain Over-hauled to Lift Load 1 Foot Ft.	Shortest Dist. btwn. Hooks In.	Wt. Lb.
¼	$108.00	$3.60	8	23	22½	12⅝	33
½	108.00	3.60	8	46	22½	12⅝	33
1	138.00	3.80	8	69	30	13⅜	36
1½	184.00	4.20	8	80	40½	17¼	59
2	215.00	4.20	9	83	52	17¼	62
3	300.00	6.45	10	85	81	20¾	90
4	360.00	6.45	10	88	104	20¾	100
5	460.00	8.65	12	75	158	24¼	145
6	545.00	8.65	12	90	158	25¼	149
8	660.00	10.90	12	89	208	34	230
10	790.00	13.10	12	95	260	35	250

*Includes load chain and hand chain in proportion.

Moore Ball-Bearing Trolleys

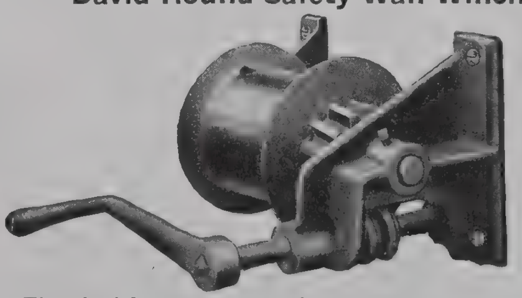


Can be used with any hook suspension hoist. Drop forged frame, heavy reinforcing ribs, with combination safety lugs and bumpers. Pressed steel wheels with built-in ball bearings. Alloy steel axle studs and hook pin.

Can be furnished for larger I-beams than those shown. Information upon request.

Capacity.........tons	¼	½	1	1½	2
Each.................	$19.00	23.00	27.00	43.00	50.00
Adj. for I-Beam....in.	3–7	3–7	4–8	6–10	6–10
Diam. Wheels......in.	2⅛	2⅛	3⅛	4¾	4¾
Ship Wt........pounds	13	13	28	54	54

David Round Safety Wall Winches



Regular Type

A safe, compact, fast lifting winch powerful enough to work safely to its rated capacity.

Fitted with cast worm and cast gear.

Capacity.......lb.	*500-SD	500	750	1000	1500
Each.............	.....	.....	.....	.....	.....
Drum......inches	5½x4	5½x6⅛	6x6¼	6x6	6x7
Gear Ratio.......	22to1	22to1	27to1	25to1	29to1
Weight....pounds	53	58	69	89	122

*Short drum.

Coffing Safety Pull Coil Chain Ratchet Lever Hoists

Equipped with coil chain that will swing or wrap in any direction. Handle can be operated on either side of hoist in any position with full or partial strokes.

Built with a dual pawl and ratchet load holding assembly. Pawls operate automatically and require no adjusting.

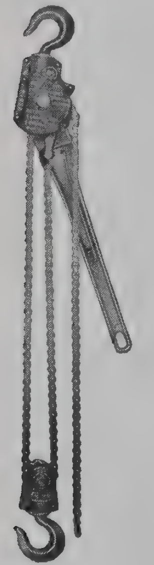
The safety valve handle will bend at the maximum overload limit.

No. RTG can be quickly and easily converted from 1½-ton capacity to ¾-ton capacity by unfastening a special chain lug fastener. No. RG hoist can be made into a No. RTG adding a super block, additional chain and a chain lug fastener.

Weight: No. RG, with 5 feet of chain, 14½ pounds; No. RTG, with 10 feet of chain, 18½ pounds.

Model	RG	RTG
Each	**$47.70**	**59.00**
Rated Capacity.....tons	¾	1½
Standard Lift.....inches	56½	57
Std. Length of Chain.....lin. ft.	5	10
Test Load.....tons	1½	3
Min. Distance bet. Hooks.....inches	11¼	14
Req. on Hdle. to Lift Rated Cap.....lb.	56	60
Shipping Weight.....pounds	15½	19½

Coffing Safety-Pull Ratchet Lever Hoists



Nos. ATG, FTG

Has side lever for positive up or down and a neutral position for automatic safety control, making hoist easy to operate. Has free chain feature, that is, when there is no load on hoist a slight pressure on thumb latch on side of lever allows load chain to be pulled through hoist, either up or down, without operating lever.

NOTE. By attaching a special iron block, called a super attachment, to Nos. AG or FG along with 5 feet of chain, to keep the standard 5-foot lift, they can be converted into double their rated lifting capacities.

*With single locking pawl. Also available with intermediate (double) locking pawl that permits half stroke of handle.

No.	Each	Extra Lift per Foot	Rated Cap. Tons	Min. Dist. between Hooks In.	Lift Speed per Min. In.	Lb. on Lever to Lift Rated Cap.	Std. Lift Inches	Wt. Lb.
*AG	**$47.70**	**$1.50**	¾	13	36	56	56½	14
*ATG	**59.00**	**3.00**	1½	15	18	60	57	17
*FG	**66.60**	**3.00**	1½	16	48	116	56½	25
*FTG	**84.50**	**6.00**	3	17	24	120	57	34
ZG4½	**151.60**	**9.00**	4½	25	18	124	51	49
ZG6	**162.50**	**12.00**	6	25	12	124	53	59
WG9	**322.00**	**15.00**	9	30	9.6	124	60	120
WG11	**346.50**	**18.00**	11	30	8	124	60	130
WG13	**368.00**	**21.00**	13	30	7	124	60	140
WG15	**400.00**	**24.00**	15	30	6	124	60	150

Simplex Industrial Jacks

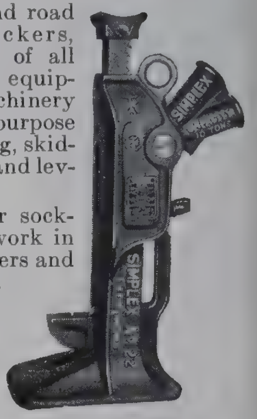
Single Action—Ratchet Lowering

No. 24A

Used by contractors, bridge and road builders, truckers, and operators of all types of heavy equipment and machinery for general purpose lifting, lowering, skidding, moving, and leveling.

Double lever sockets facilitate work in cramped quarters and angular lifting.

Will lift full capacity on the toe and cap.



No. 22

No.	Each	Cap. Tons	Ht. In.	Lift In.	Lever In.	*Standard Lever Socket	Toe Lift Min. In.	Wt. Lb.
84A	**$26.25**	5	14	7	30	2-Way	1⅝	28
85A	**28.75**	5	17	10	30	2-Way	1⅝	30
86A	**32.00**	5	20	13	36	2-Way	1⅝	35
22	**46.25**	10	21¼	12½	60	2-Way	2⅛	58
†A1022	**62.65**	10	20½	12	60	2-Way	2	42
1017	**36.25**	10	17	9½	60	2-Way	1⅝	40
* **24A**	**62.00**	15	23¼	13	60	2-Way	2½	90
* **29**	**64.25**	15	28¼	19	60	2-Way	2½	96
***2029**	**70.75**	20	28¼	18	70	2-Way	2½	104

*Oval, large rd. or sq. lever sockets also available.
†Aluminum.

Simplex Malleable Base Ball-Bearing Screw Jacks

4-Way Head Type

Has a single chromemology steel ball, nested in a hardened nickel steel ball seat. Strong, heat-treated and chisel-pointed high carbon steel lever bars. Safety peephole in malleable base prevents over extending screw and eliminates measuring.

Jack color indicates capacity.

Sizes based on housing height.

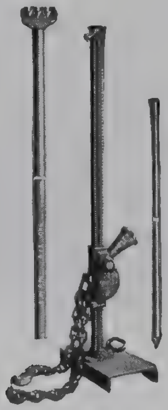
Painted Red—12-Ton Capacity with 1½-Inch Diameter Screw

Size Inches	Jacks Each	Chisel-Pointed Heat-Treated Lever Bars Each	Height Closed Inches	Operable Rise of Screw Inches	Lifting Cap. Tons	Jack Wt. Lb.
1½x 4	**$5.65**	**$1.15**	7⅝	2	12	9
1½x 6	**6.05**	**1.15**	9⅝	3¾	12	10
1½x 8	**6.90**	**1.15**	11⅝	5¾	12	12
1½x10	**7.70**	**1.15**	13⅝	7¾	12	14
1½x12	**8.55**	**1.15**	15⅝	9¾	12	16
Painted Light Blue—16-Ton Capacity with 1¾-In. Diam. Screw						
1¾x 8	**$8.10**	**$1.95**	11¾	5¼	16	15
1¾x10	**9.20**	**1.95**	13¾	7¼	16	18
1¾x12	**10.30**	**1.95**	15¾	9¼	16	20
Painted Grey—20-Ton Capacity with 2-Inch Diameter Screw						
2 x 6	**$8.35**	**$2.60**	9¾	3	20	15
2 x 8	**9.50**	**2.60**	11¾	5	20	17
2 x10	**10.60**	**2.60**	13¾	7	20	20
2 x12	**11.70**	**2.60**	15¾	9	20	23
2 x14	**12.85**	**2.60**	17¾	11	20	26
Painted Dark Blue—24-Ton Capacity with 2½-Inch Diam. Screw						
2½x 8	**$14.45**	**$3.85**	13	4¼	24	30
2½x12	**17.20**	**3.85**	17	8¼	24	37
2½x14	**19.30**	**3.85**	19	10¼	24	40
2½x16	**21.35**	**3.85**	21	12¼	24	48
2½x18	**23.40**	**3.85**	23	14¼	24	52

Simplex Pole Pulling and Pole Straightening Jacks

5 and 15-Ton Capacities

No. 1538


No. 325

For pulling or straightening telephone, telegraph, electric power and trolley poles quickly, without digging. Single-acting and ratchet lowering.

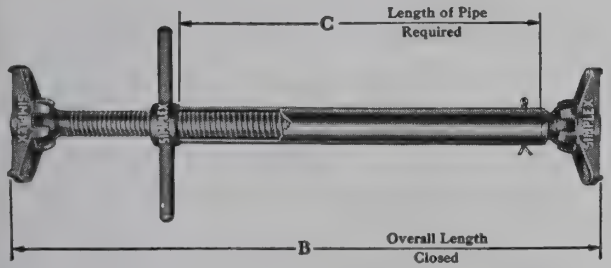
No. 325. Complete with a 5-foot steel pinch bar lever, 5-foot steel chain; and 8x15-inch steel channel base; 8-foot pike pole, equipped with a malleable-iron forked cap for biting into wood for straightening poles.

No. 1538. Complete with an 8-foot scarf-welded BBB steel chain, fitted with pear-shaped link; a 10x24-inch I-beam base with hand hole; and a 5-foot steel lever bar.

No. A1538. Same as No. 1538 except with aluminum housing for lightness.

No.	325	1538	A1538
Each	**$73.35**	**101.25**	**113.25**
Capacity.....tons	5	15	15
Height.....inches	50	37¾	37¾
Lift.....inches	36	22	22
Weight of Jack.....pounds	34	100	60
Weight Complete.....pounds	98	186	146

Simplex Drop-Forged Steel Trench Braces



Complete with Pipe

Constructed entirely of steel drop forgings. The ball and socket joints at each end permit quick adjustment and tight gripping at all angles. Three way nuts can be furnished in lieu of lever nuts at no extra cost.

Specifications Complete with Pipe

Each Net	Pipe and Screw Diam. Inches	Length of Screw Inches	B Length of Brace Closed Inches	C Length of Pipe Inches	Safe Extension of Screw In.	Unit Weight with Pipe Lbs.
$5.50	1½	12	18	10½	7	16
5.80	1½	14	21	13½	9	17½
5.80	1½	14	24	16½	9	18
6.25	1½	16	27	19½	10	19½
6.25	1½	16	30	22½	10	20
12.20	2	18	36	26	10	40
12.45	2	18	42	32	10	42
12.70	2	18	48	38	10	43½
13.00	2	18	54	44	10	45½
13.20	2	18	60	50	10	47

No. FZ-31 Blackhawk Porto-Power Maintenance Equipment Kits

10-Ton Capacity

A basic set for maintenance in mines, mills, oil fields, machine shops, shipbuilding and construction work to do a variety of pushing, pulling, lifting, bending, spreading and clamping jobs.

Shipping weight, 126 pounds.

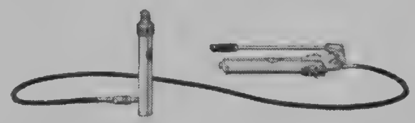
No. **FZ-31**.....each **$137.65**

Contents of Kit

No.	Description	Qty.	Ship. Wt. Lb.	Each
FZ-1002	5-Inch Lock-On Extension.....	1	1⅛	**$1.85**
FZ-1003	10-Inch Lock-On Extension....	1	2⅜	**2.55**
FZ-1004	20-Inch Lock-On Extension....	1	5	**3.50**
FZ-1005	30-Inch Lock-On Extension....	1	7⅜	**4.05**
FZ-1050	Lock-On Connector...........	2	2	**2.75**
FZ-1051	Lock-On Male Adaptor........	2	1⅝	**2.10**
FZ-1052	Lock-On Female Adaptor......	1	1½	**2.50**
S-71	10-Ton Hydraulic Unit........	1	31	**62.00**
Z-8	Clamp End Toe...............	1	1⅞	**1.65**
Z-9	Spreader Plunger Toe.........	1	1 9/16	**1.35**
Z-10	Short Connector..............	1	9/16	**.75**
Z-14	Flat Base...:.................	1	3 3/16	**2.75**
Z-16	90° V-Base..................	2	1 3/16	**1.05**
Z-21	Lock Pin.....................	4	⅛	**.37**
Z-30	Spreader Ram Toe............	1	2 3/16	**1.70**
Z-109	C Clamp, 4x6 Inches..........	1	14⅛	**8.30**
Z-129	Wedge Head..................	1	1⅜	**1.15**
Z-132	Chain Pull Plate..............	1	10⅛	**4.00**
Z-141	7-Ft. Chain..................	2	9 1/16	**8.50**
Z-183	Pusher Pin 11/16-Inch Diam.....	1	15/16	**3.00**
Z-185	Smooth Saddle................	1	¾	**1.50**
Z-192	Clamp Head..................	1	2½	**2.30**
19533	Wooden Case, 34x14x8 inches..	1	20	**5.50**

No. SA-50 Blackhawk Bantam Porto-Power Hydraulic Units

Capacity, 4 Tons



Designed especially for the many maintenance production and service jobs that do not need all the power and size of larger Porto-Power units.

For electricians, carpenters, furniture movers, diemakers, plumbers, and others.

The SA-50 consists of the No. P-400 pump, No. Z-864 six-foot hose assembly and the No. RC-540 ram.

No. **SA-50**, Complete, Weight, 11⅛ Pounds....each **$43.30**

No. TC-7 Blackhawk Hydraulic Jacks

1½-Ton Capacity

Designed for light delivery trucks, passenger cars, farm pick-up trucks, and for general use around the farm.

Malleable iron top cap provides solid rigidity to the entire jack to support off-center loading encountered in lifting light trucks and passenger cars.

Replaceable pump assembly; can be replaced using an ordinary wrench as pump housing is not a part of jack base.

Malleable iron pump beam withstands rough abuse, sudden shocks and strain.

Stows easily under seat, in trunk or tool compartment.

Low height, 7 inches. Hydraulic lift, 5 3/16 inches.

Total height, 14¼ inches, including screw extension. Screw extension, 2 1/16 inches.

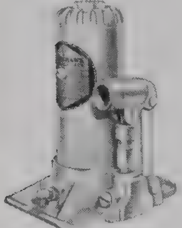
Handle length, 22 inches. Base, 3⅝x5 inches.

No. **TC-7**, Weight, 4 5/16 Pounds.................. each **$8.80**

No. AA-8.5 Blackhawk Hydraulic Jacks

5-Ton Capacity

Designed for low axles, also for shop work in cramped quarters. With screw extension and wide safety margin.



Sled-type ribbed base. Release valve separate from pump for safety.

Will operate horizontally.

Height low, 9 inches; hydraulic lift, 6¼ inches; screw extension, 4½ inches; overall base size, 4 3/16x6¾ inches; diameter ram plunger, 1½ inches; total height, 19¾ inches.

Handle No. 2; length 33¼ inches.

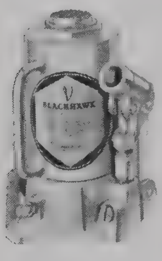
Weight, 18 pounds.

No. **AA-8.5**.................................. each **$17.10**

Blackhawk Heavy Duty Hydraulic Jacks

For general service, emergency work and hour-after-hour performance on shop and construction jobs.

Made of malleable iron and steel.

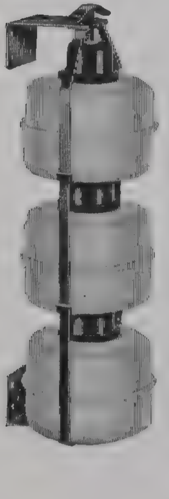


No.	D-8.7	EA-11
Each	**$27.55**	**46.00**
Capacity .... ton	12	20
Low Height .... in.	8½	11
Hydraulic Lift ...... in.	5⅛	6½
Handle Length ..... in.	21	21
Overall Base Size ... in.	5¾x5¾	6 5/16x6 5/16
Ram Plunger Diameter .... in.	1⅞	2¼
Screw Extension .... in.	4½	None
Total Height .... in.	18⅛	17½
Handle No.	H-12	H-12
Weight .... lb.	27	38

No. EA-11 can be used with gauge.

Toledo Nestor Truck Flare Sets

With No. 5 Flares



Economy burner sealed with black enameled locktight sealing cap. Double seamed joint, 20-gage steel. Burns 16 hours. Liquid capacity, 48 ounces. Red enamel finish.

Bracket mounting arrangement retains flares securely and quietly.

Made heavy for long hard service. Weatherproof and leakproof.

May be securely locked against theft.

Conforms with the regulations of the Interstate Commerce Commission and has the approval of all states where flares are required.

No.	Description	Each	Ship. Wt. Lb.
122	2 Flares in Bracket	**$6.94**	...
123	3 Flares in Bracket	**9.43**	8½

Toledo Non-Self-Righting Signalite Torches

Sig-nal-ite
THE TOLEDO PRESSED STEEL CO
TOLEDO, O.U.S.A.
PAT-1-11-27

Made from 20-gage steel and the halves are joined together by a leakproof, double-seamed joint.

No. 651, Model A

Burns up to 52 hours on one filling. The base diameter is enlarged for stability.

Packed 3 in a carton.

Ship. weight per dozen, 35 lb.

No. **651**.......... per dozen **$27.00**

No. 641, Model F

A smaller torch of the same diameter as above, but of reduced height. Capacity, 4½ pints.

Useful for truck operators using general equipment boxes. Packed in pairs and 4 in a carton.

No. **641**................................ per dozen **$27.00**

Toledo Torches

This torch rights itself from any position; uses kerosene; has a capacity of 3 quarts; is equipped with the Economy Burner and burns up to 48 hours on 1 filling; finished in high luster black, baked enamel. Packed 3 per box.

THE TOLEDO TORCH
THE TOLEDO PRESSED STEEL CO
TOLEDO, O.U.S.A.
PAT-1-11-27

No. 620 Leader

Made from 20-gage steel; halves joined together with leakproof double seamed joint.

Weight, 5½ pounds.

No. **620**.......... per doz. **$33.00**

No. 630 Champion

Made of 14-gage steel and is welded at the seam.

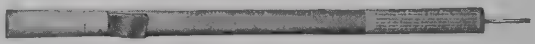
Weight, 6½ pounds.

No. **630**.......... per doz. **$51.00**

No. **610**, Extra Wicks, 18 Inches Long...... per doz. **2.89**

No. 15S Fusee Type Red Emergency Flares

Listed by Underwriters' Laboratories



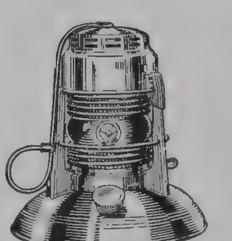
Manufactured in accordance with Bureau of Explosive Specifications. Friction cap ignited.

Has a 15-minute red burning fusee with spike end.

Standard package, ½ gross per carton; weight, 34 lb.

No. **15S**................................ per gross **$48.35**

No. 40 Dietz Traffic-Gard Lanterns



A strong, compact, leak-proof, storm-tested 100-hour kerosene burning light. For use on projects of extended duration.

Fresnel lens magnifies flame, converts it into far-reaching safety beam. No. 252 burner creates little heat. No. 40 Fresnel globe stays cool. Broad, non-tipping, 7¼-inch base. Wick, ¼-inch round.

Capacity, 16 ounces. Height, 7¾ inches.

Red enamel finish.

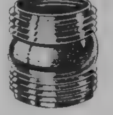
Packed 12 in a standard package.

Shipping weight, 29 pounds.

No. **40**................................	per dozen	**$40.00**
Extra Globes..............................	per dozen	**12.00**
No. **253**, Extra Wicks....................	per gross	**15.20**

No. 40 Dietz Traffic-Gard Fresnel Globes

For Traffic-Gard Lanterns



Concentrates light in a perpendicular beam, accentuating visibility.

Colors: clear, ruby, green and amber.

Height, 3¼ inches.

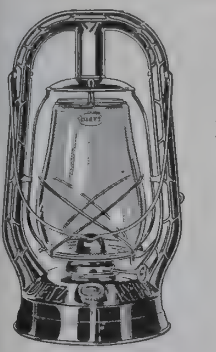
Top and bottom diameter, 2⅞ inches.

Packed 12 in a case; weight, 11 pounds.

No. **40**................................ per dozen **$12.00**

Dietz Streamline Monarch Lanterns

Hot Blast—For Kerosene



Will burn for 30 hours.

Made of terne plate, finished in blue enamel.

Fitted with No. 411 steel burner, and Dietz Fitzall Loc-Nob globe.

Available with white or solid ruby globes, as specified.

Height, 13½ inches.

Light, 4 candle power.

Wick, ⅝ inch.

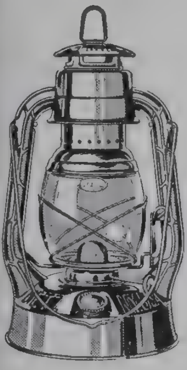
Capacity, 16 ounces.

Packed 12 in a package.

With White Globes	per dozen	$32.60
With Ruby Globes	per dozen	37.60

Dietz Streamline Little Wizard Lanterns

Cold Blast—Balanced Draft—For Kerosene



Fitted with Dietz Little Wizard Loc-Nob globe and specially braced lift-guide. Made of terne plate.

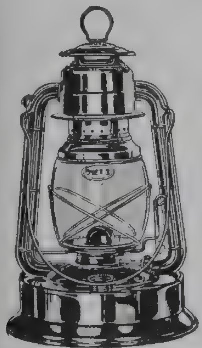
Blue enamel finish.

Packed 12 in a package.

Height Overall	inches	11½
With White Globe	per dozen	$34.80
With Ruby, Yellow, Blue or Green Globe	per dozen	38.80
Volume of Light by Test	cp.	6
Size of Wick	inches	⅝
Fount Capacity	hours	30
Kerosene Capacity	ounces	16
Lock Steel Burner No.		211

Dietz Little Giant Lanterns

Cold Blast—For Kerosene



Given a full supply of oil and a clean wick, turned up to moderate flame, lantern furnishes a bright, dependable light continuously for 3 days, in any kind of weather. Will burn over a week-end without attention.

Height, 11½ inches; wick, ⅝ inch. Light, 6 cp.; globe, Dietz Little Wizard Loc-Nob. No. 211 steel burner. Oil, 150° kerosene. Burns 70 hours.

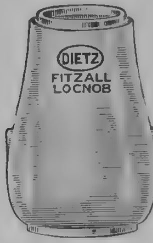
The broad base and low center of gravity make it almost impossible for lantern to be blown over.

Terne plate, blue enamel finish.

Packed 1 dozen in a box. Weight per dozen, 30 pounds.

With White Globe	per dozen	$37.00
With Ruby Globe	per dozen	41.00

Dietz Fitzall Loc-Nob Lantern Globes



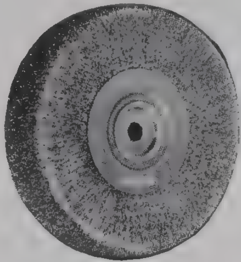
Standard equipment on the following Dietz lanterns: Monarch and No. 2 Blizzard.

Height, $6\frac{9}{16}$ inches. Diameter bottom, $3\frac{7}{16}$ inches. Diameter top, $2\frac{13}{16}$ inches.

Packed 36 in a case; shipping weight 30 pounds.

White	per dozen	$5.50
Ruby, Yellow, Blue or Green	per dozen	10.50

Mono-Bilt Wire Wheel Brushes



Fits practically all standard portable or stationary shop equipment. Ideal for power brushing operations such as removing scale, rust, paint, weld spatter, and surface imperfections from small castings, metal parts, fittings, etc. Can be made of coarser or finer wire as desired.

A complete all metal unit consisting of individual sections locked tightly together under tremendous pressure between two metal face plates on a tubular steel hub with flared ends.

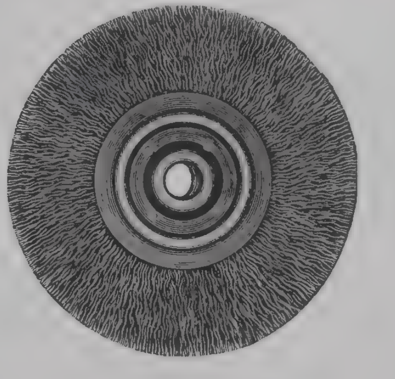
The sections are densely filled with specially tempered crimped steel wire and are machine trimmed simultaneously to produce an even brushing face that insures maximum abrasive action with quick-cutting results.

Brushes 6 inches and larger in diameter have a standard 2-inch opening into which adapters can be inserted to fit any size shaft ranging from ⅜ to 1½ inches in diameter. Brushes with 4-inch diameter are made with punched arbor hole sizes ranging from ¼ to 1-inch for mounting directly on shaft or spindle without adapters.

When ordering, specify size of arbor hole.

	W. & M. Gage Wire			.005-Inch				
No.	30–33 Each	36 Each	39 Each	Wire Each	Diam. In.	Thick. Thru Arbor In.	Approx. Width Face In.	Wt. Lb.
101	$18.00	$20.78	.....	.....	12	2	2½	8
121	14.44	16.40	.....	.....	12	1¼	1¾	6
102	15.20	16.78	$19.86	.....	10	2	2½	7
122	12.34	13.54	15.06	.....	10	1¼	1¾	5
103	10.12	11.12	12.22	$15.52	8	1⅜	1¾	3½
123	7.78	8.78	9.44	11.86	8	1	1⅜	2½
105	7.22	7.96	8.78	11.22	6	1⅜	1½	2½
125	5.34	6.12	6.78	9.00	6	1	1⅛	2
3305	4.56	5.12	5.78	7.00	4	¾	1	¾
3304	3.56	4.00	4.56	5.66	4	⅝	¾	½

Milwaukee Steel Clad Wire Wheel Brushes



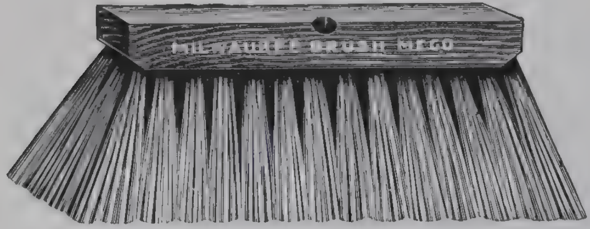
Well-filled, complete brush unit with crimped steel wire, securely held between two metal face plates. Arbor holes are punched for mounting directly on shaft without adapters.

Can be made of coarse or fine wire. Fine wire sections furnished with either brass or steel wire, as required.

When ordering, specify size of arbor hole.

	W. & M. Gage Wire							
No.	30-33 Each	36 Each	39 Each	.005-Wire Each	Diam. In.	Thick. Thru Arbor In.	Approx. Width Face In.	Wt. Lb.
130	$3.78	$4.22	....	....	15	½	¾	1¾
131	3.18	3.44	....	....	12	½	⅝	1¼
132	2.86	3.18	....	....	10	½	⅝	1
133	2.12	2.22	$2.44	....	8	½	½	¾
135	1.44	1.56	1.76	....	6	⅜	½	½
136	1.26	1.42	1.60	....	5	⅜	½	⅜
137	1.22	1.40	1.52	....	4	⅜	⅜	¼
138	1.10	1.22	1.40	$1.76	3	⅜	⅜	⅛
113	....	....	....	3.18	8	⅜	½	¾
115	....	....	....	2.56	6	⅜	⅜	½
117	....	....	....	2.12	4	⅜	⅜	¼

No. 1211 Fiber Push Brooms



Especially designed for street sweeping.

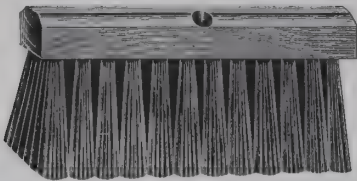
Solid hardwood block, 2 handle holes. Staple set. Five rows. Best quality Bass. Length stock, 6¼ inches. Size block, 16x3½ inches.

Packed 12 in a shipping carton.

No. **1211**	per dozen	**$41.34**
Sweep of Broom	inches	22
Weight, per Dozen	pounds	42

African Bass Fiber Push Brooms

Solid Hardwood Block

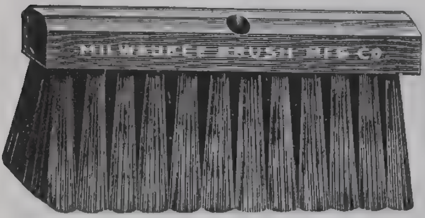


Staple set. Two tapered handle holes. Handles not included in price.

Packed 12 in a shipping carton.

No.		**1121**
Per Dozen		**$34.44**
Size Block	inches	14x3
Rows		4
Length Stock	inches	5¼
Weight per Dozen	pounds	32

Milwaukee Push Brooms



For general rough sweeping.

Hardwood block, tapered handle holes. Staple set.

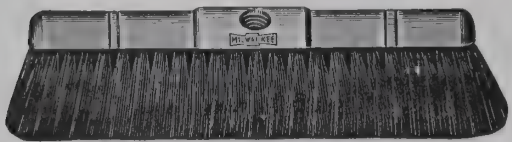
Made of selected Congo fiber, similar to bamboo fiber, but more durable.

Length of stock, 6¼ inches.

No.		**1271**	**1277**
Per Dozen		**$28.78**	**36.22**
Size of Block	inches	14x3	16x3½
No. of Rows		4	5
Weight per Dozen	pounds	32	44

Prices do not include handles.

Alice Floor Brushes



Selected black fiber center, black horse hair casing, staple set. Polished block, two threaded handle holes, polished handle.

Fiber center adds a penetrating effect and the hair casing makes the brush adapted for clean sweeping.

Handles are included in the prices.

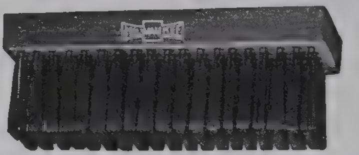
Length of stock, 2⅞ inches.

Packed in individual cartons.

Length	inches	**16**	**18**	**24**
Per Dozen		**$61.32**	**68.70**	**94.32**
Weight, per Dozen	pounds	36	39	50

No. 1611 Steel Wire Scratch Brushes

Round Carbon Steel Wire—Straight Back—Solid Hardwood Block



Removes grease, rust, and dirt from any metal or wood surface.

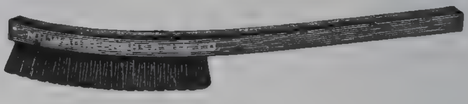
Block 7¼x2¼ in. Rows 6x19. Length wire 1¾ in.

Packed 12 in carton.

No. **1611**, Weight per Dozen, 9½ Lb. . . . . . per Doz.	**$9.12**

Long Handle Wire Hand Brushes

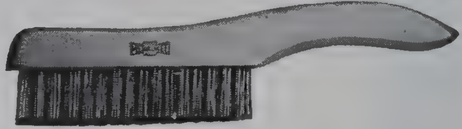
Round Carbon Steel Wire—Solid Hardwood Block



Brush part is 6¼ inches long.

No.		**1651**	**1656**
Per Doz		**$5.56**	**6.78**
Rows		3x19	4x19
Block	inches	1x14	1⅛x14
Length of Wire	inches	1⅛	1⅛
No. in Carton		12	12
Weight per Gross	pounds	68	78

Shoe Handle Wire Scratch Brushes



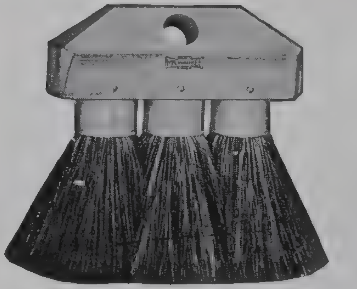
For cleaning and removing paint, scale, rust, or dirt from wood, stone, and metal surfaces. Also used for cleaning architectural iron work, marble, etc.

Made of round wire. Solid block.

Brush part, 5 inches long.

No.		**1641**	**1646**
Per Doz		**$6.66**	**6.12**
Size Block	inches	1x10	⅝x10
Length Wire	inches	1¼	1¼
No. of Rows		4	2
No. in Carton		12	12
Weight per Dozen	pounds	5	3¼

Tarzon Roof Paint Brushes



Selected white tampico fibre.

Pressed steel ferrules.

Stock 3½ inches out of ferrule.

Natural varnished block, 1½ inches wide on face.

Packed 6 in a carton.

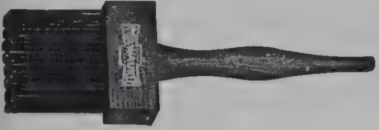
Size		3-Knot	4-Knot
Per Dozen		**$22.68**	**28.36**
Weight per Dozen	pounds	13	17

MATERIAL NOT LISTED

We can furnish many items not listed in this catalog.

Please send us all your inquiries.

No. 1661 Painters' Fine Wire Dusters



Length of wire, 2⅜ inches; 4 rows,

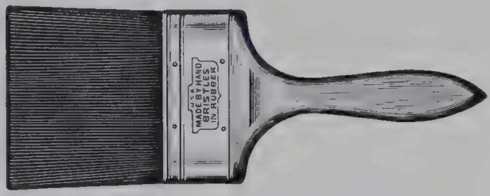
Block 2¾x1⅛ in.

Weight per dozen. 3¾ pounds.

Packed 12 in carton.

No. **1661**.................................per doz. **$7.78**

No. 901 Milwaukee Flat Wall Paint Brushes

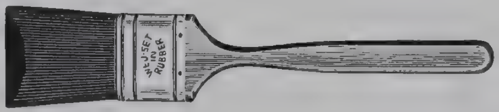


For use in the home and factory.

Nylon and bristle mixture. Vulcanized in rubber. Metal ferrule. Clear lacquered Peerless handle.

Width........................inches	**3**	**3½**	**4**
Per Dozen............................	**$36.00**	**45.00**	**54.00**
Length of Bristles.............inches	2¹¹⁄₁₆	2¹⁵⁄₁₆	2¹⁵⁄₁₆
Thickness....................inches	⅞	⅞	⅞
Weight per Dozen.............pounds	3¾	4	4¾

No. 270 Milwaukee Flat Sash Tools



For home and maintenance use.

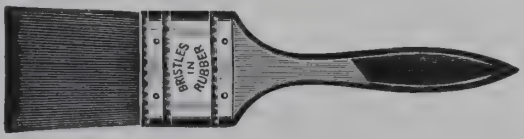
Black bristles. Double thick. Form chisel. Vulcanized in rubber. Metal ferrule. Long clear lacquered flat sash handle.

Width...........................inches	**1**	**1½**	**2**
Per Dozen............................	**$6.30**	**9.00**	**13.50**
Length of Bristles...............inches	1¾	2	2¼
Thickness......................inches	⅜	½	½
Weight per Dozen..............pounds	1	1½	2¼

Milwaukee Flat Varnish Brushes

Pure black bristles; vulcanized in rubber; metal ferrule. Clear lacquered handle; 1 dozen in carton.

Echo



Single thick; flat trim. Peerless type handle.

Width.......inches	**½**	**1**	**1½**	**2**	**2½**	**3**
Per Dozen.........	**$3.34**	**3.84**	**4.78**	**6.56**	**12.00**	**14.44**
Lgth............in.	1¾	1¾	1¾	1¾	1¹⁵⁄₁₆	2³⁄₁₆
Thickness.......in.	⁵⁄₁₆	⁵⁄₁₆	⁵⁄₁₆	⅜	⅜	⁷⁄₁₆
Wt. per Doz.....lb.	⅓	¾	1¼	1½	1¾	2½

No. 401

Double thick; trim chisel; Onyx type handle.

Width.............inches	**1**	**1½**	**2**	**2½**	**3**
Per Dozen...............	**$4.50**	**6.30**	**9.00**	**13.56**	**18.00**
Length............inches	1¾	1¾	2	2¼	2⁷⁄₁₆
Thickness.........inches	⅜	½	½	⁹⁄₁₆	⁹⁄₁₆
Weight per Dozen.pounds	1	1¾	2¼	2¾	3¼

No. 439 Lay Banded Corn and Bamboo Mixed Brooms

For all general heavy sweeping.

Made of heavy quality broom corn and selected bamboo evenly distributed.

The bamboo fibre will wear off even with the broom corn, constantly presenting a full square sweeping surface.

Built on strong hardwood handle, made rigid by steel wire band and two extra strong twine sewings.

Weight per dozen, 36 pounds.

No. **439**............per dozen .....

Lay Banded All Corn Mill Brooms

Wound

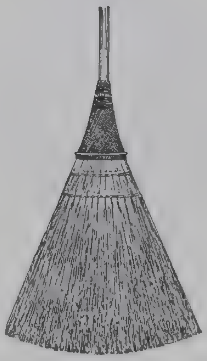
Inside winding securely attached to the handle by means of special duck bill nails which clamps the wire and filling to the handle.

The hurl, is strengthened and made rigid by the steel wire band and two extra strong twine sewings.

Hardwood handle.

No.	Per Dozen	Wt., Lb. per Doz.
238	....	30
238A	....	32
238B	....	34
239	....	36
239A	....	38
239B	....	40
240	....	42

Lay 14-Ounce Kitchenette Broom



Sweeps rugs and carpets more easily than ordinary brooms of more than twice its size and weight.

Easy to handle; gets into corners, under furniture, under radiators.

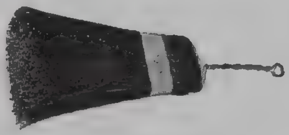
Each finger at the tip of the whisk picks up and carries away lint and dirt. Does not pull nap.

Sweeping distance, 97 miles.

Weight, 14 ounces.

Per Dozen... ....

No. 690 Osborn Whisk Brooms



Made of selected bassine fiber. Length overall, 9¼ in.

For use in battery service stations and in general around the automobile and machines.

Packed 1 dozen in a container; weight, 2½ pounds.

No. **690**......................................each **$.68**

OSBORN

Osborn Master Sweep Floor Brushes
For Fine Sweeping

MASTER SWEEP

For fine sweeping in homes, offices and stores on smooth surfaces, wood floors, tile and linoleum. First quality black horse hair; each tuft individually anchored in a solid hardwood block; length of stock, 2¾ inches. Raised light blue band on natural lacquered block; two threaded handle holes; hardwood handles.

Packed 1 in a container.

No.	214	216	218	219	220
Each	$7.96	9.02	9.80	12.84	23.46
Length Block......inches	14	16	18	24	36
Ship. Wt. per Dozen with Handles........pounds	30½	32¾	35½	44½	59¾

Osborn Master Sweep Floor Brushes
For Medium Sweeping

MASTER SWEEP

For sweeping normally rough industrial floors.

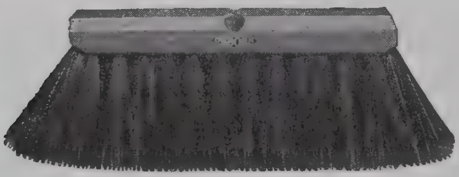
Black tampico fiber center with black horse hair casing; length of stock, 2¾ inches.

Raised orange band on natural lacquered hardwood block; two threaded handle holes. Handle included.

Packed 1 in a container.

No.	866	867	868	870	871	872
Each	$5.14	5.84	6.58	8.76	14.96	15.58
Length Block...in.	14	16	18	24	30	36
Ship. Wt. per Dozen with Hdle.....lb.	30½	33½	35½	45½	54	60

Osborn African Bass Fiber Push Brooms
Corporation Style



For general street sweeping. Solid block. Medium-coarse African bass fiber. Wide flare on sides and ends.

Without handles. Packed 1 dozen in a container.

No.	500	500-D
Each	$4.24	3.90
Block.....inches	16x3½	16x3½
Rows wide	5	5
Trim.....inches	7¼	6¼
Approximate Brush Face.........inches	22x4	20½x4
Shipping Weight per Dozen.....pounds	43¾	43½

Osborn Extra Floor Brush Handles

No. 587. Hardwood, shellac finish handles regularly furnished with all standard floor brushes except the No. 641 line.

Nos. 588 and 589. Longer hardwood handles for the standard line of floor brushes except the No. 641 line.

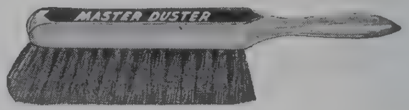
No. 586. Hardwood, natural finish. Fit the No. 641 line.

No. 592. For the No. 641 line, longer than No. 586. Hardwood, natural finish, tapered end.

All handles have threaded ends.

No.	587	588	589	586	592
Each	$.60	.72	.90	.58	.68
Length.................feet	4½	5	6	4⅓	5
Approx. Diameter....inches	15/16	15/16	15/16	1 1/16	1⅛
Weight per Dozen...pounds	12	14	16	14	18

Osborn Master Counter Dusters



Particularly suited for picking up fine dust or dirt.

Pure black horse hair bristle.

Staple set. Dark blue band on natural lacquered block.

Trim 2¼ inches.

Packed 1 dozen in container.

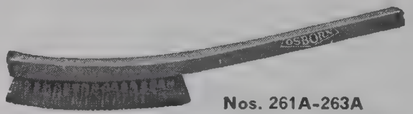
No.	656	657
Each	$2.88	3.46
Length Brush..................inches	8	9
Approx. Ship. Wt. per Dozen....pounds	8	9

No. 292 Osborn Chip Brushes

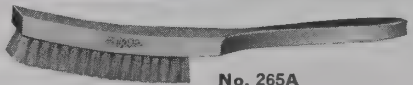
For removing chips and dirt, light dusting and for applying oil to tools and machinery. Special fine black Tampico fiber, firmly anchored in copper sleeve; galvanized steel wire handle. Width, 1½ inches. Overall length, 8¾ in. Length of stock 1⅞ in. Packed 2 dozen in container. Approx. shipping weight per dozen, 1⅜ pounds.

No. **292**......................................each **$.56**

Osborn Platers' Washout Brushes



Nos. 261A-263A



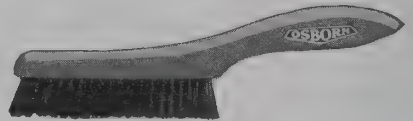
No. 265A

Long handled for use in connection with potash or lye. On solid block with staple setting; curved handle.

Packed 12 in a container.

	White Tampico			Black China Bristles
No.	261A	263A	265A	263D
Each	$.52	.58	1.32	2.30
Length Overall........inches	12	13¼	12¼	13¼
No. Rows	2x16	4x18	6x17	4x18
Width of Block........inches	⅝	1⅛	1⅝	1⅛
Length of Bristles......inches	1	1	1	¾
Approx. Ship. Wt., Doz....lb.	2	4	4½	3⅝

Platers' Shoe Handle Brushes



Has solid block 1 1/16 inches wide, staple set. Length of brush part, 5¼ inches. Length overall, 10 inches.

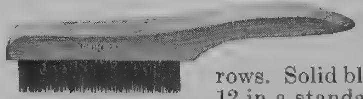
No. 278. Made of gray tampico fiber. Number of rows, 4x18. Length of bristles, 1 inch. Packed 12 in a container; weight, 3½ pounds.

No. **278**......................................each **$.78**

No. 274. Made of black Chinese bristle. Number of rows 4x18. Length of bristles, ¾ inch. Packed 12 in a container, weight, 3½ pounds.

No. **274**......................................each **$2.34**

Osborn Fine Steel Wire Cleaning Brushes

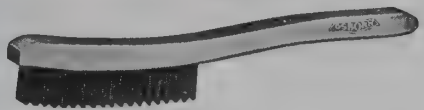


Trim, 1 3/16 in. Lgth. of brush part, 5¼ in. Lgth. overall, 10 in.; 4x16 rows. Solid block 1 1/16 in. wide. Packed, 12 in a standard package.

No. **1781-S-49**, With .010 Stainless Steel Wire; Weight per Dozen, 4 5/16 Pounds.......................each **$1.90**

No. **1781-S-51**, With .0118 Silicon Bronze Wire; Weight per Dozen, 4¾ Pounds.......................each **1.84**

No. 1777 Osborn Steel Wire Scratch Brushes

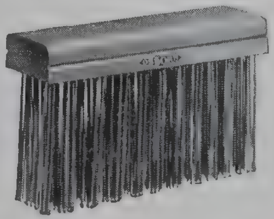


An automobile brush. Solid block.

Packed 1 dozen in a container.

No.		**1777**
Each		**$.60**
Width Block	inches	15/16
Trim	inches	1 3/16
Length Brush Part	inches	6
No. of Rows		3x19
Length Overall	inches	13 11/16
Approx. Ship. Weight per Doz	pounds	5

Osborn Plain Steel Wire Casting Brushes



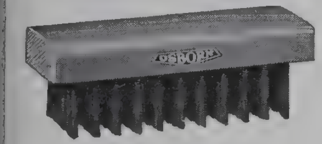
Made of first quality .017x.059 tempered flat steel wire on hardwood block, 5 wires doubled per hole.

No. of rows, 5 by 10. Size block, 7¾x2¾ inches.

Packed 12 in a container.

No.		**5**	**6**	**7**
Each		**$1.62**	**1.90**	**2.12**
Wire Length	inches	2	3	4
Shipping Weight per Dozen	pounds	11⅞	13 1/16	14⅜

No. 177 Osborn Steel Wire Scratch Brushes



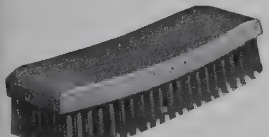
For cleaning stone or terra cotta or renewing rough painted surfaces.

Solid block, 7⅝x2⅝ inches, rows 5x11. Length of wire, 1 19/32 inches.

Approximate shipping weight per dozen, 12 pounds.

No. **177**....each **$1.54**

No. 1779 Painters' Wire Scratch Brushes

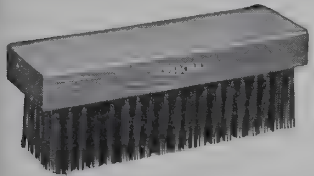


Short trimmed, full stiff brush for removing paint, varnish and wax, and for cleaning and preparing flat surfaces. Solid block, 7¼x2⅞ in. Rows, 9x21. Steel wire, 1 3/16 inches long.

Packed 12 in a container; weight 10 pounds.

No. **1779**....each **$1.26**

Osborn Fine Wire Scratch Brushes

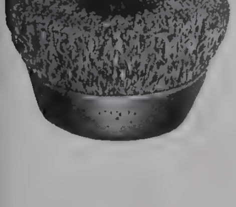


For removing paint and varnish. Solid block, 7¼x2¼ in. Rows 6x19. Packed 12 in container; wt., 8 lbs.

No. **1780**, With Steel Wire, 1 23/32 Inches Long....each **$.92**

No. **1780-S-20**, With .014 Inch Brass Wire....each **$2.80**

Osborn Crimped Steel Wire Cup Brushes



Diam. brush part, 3½ in.; cup shaped, metal back, special analysis wire, .020 in. extending 1 in. out of cup. Unit package, ⅞ lb.

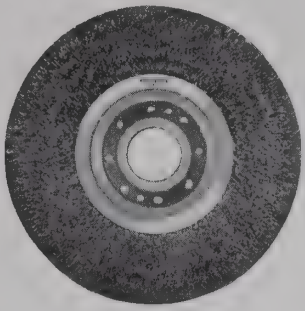
No. 4208. ½ or ⅝-in. arbor hole.

No. **4208**....each **$7.34**

No. 4208-S-30. Made with ⅝-inch N.C. 11 threaded arbor hole.

No. **4208-S-30**....each **$8.46**

Osborn Master Steel Wire Wheel Brushes



Nos. 150, 151, 152 and 153

The assembly of steel sections is locked into the hub under tremendous pressure.

The 6 and 4-inch diameter sections differ slightly from the larger sizes because of the shorter trim.

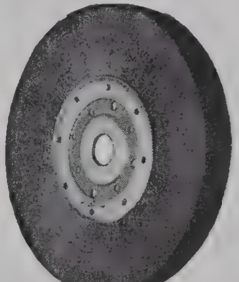
One pair of No. 1-A adapters of arbor hole specified is supplied. Adapters available in ¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1⅛, 1¼, and 1½-inch sizes, easily snap into standard 2-inch opening.

Unit package, one brush.

When ordering specify wire size and size arbor hole.

No.	Diam. In.	Approx. Width at Face In.	Width at Arbor In.	Trim Lgth. In.	Wire Size In.	Max. Speed RPM	Wt. Lb. per Pkg.	Each
157	4	1	⅞	25/32	.005	4500	13/16	**$14.44**
					.008		13/16	**8.98**
					.0118		13/16	**6.98**
					.014		13/16	**6.98**
154	6	1⅛	1⅛	1 1/16	.005	4000	1¾	**21.38**
					.008		1 9/16	**12.42**
					.0118		1⅝	**9.58**
					.014		1⅝	**9.58**
153	8	1⅛	1	1½	.005	3500	2¾	**24.34**
					.0095		2 7/16	**13.22**
					.014		2 7/16	**13.22**
					.020		2 7/16	**13.22**
152	10	1⅝	1¼	1 13/16	.0104	3000	5	**24.06**
					.020		5	**24.06**
151	12	1¾	1⅜	2 13/16	.0118	2750	6½	**29.24**
					.020		6½	**29.24**
150	15	2¼	1⅝	3⅜	.0118	2400	9¾	**36.20**

Osborn Monitor Wire Wheel Brushes



For brushing narrow or irregular surfaces. Wider surfaces on operations where brush flexibility is a factor, Monitors mounted in multiple provide efficient performance. A wide range of finishes can be obtained depending on wire size, brush diameter, trim length and surface speed.

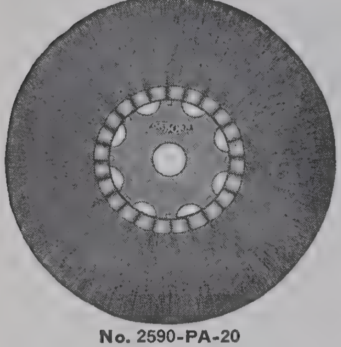
Specify size arbor hole.

No. 1409 Heavily Filled

No.	Each	Diam. In.	Width Face In.	Width at Arbor In.	Trim Lgth. In.	Wire Size In.	Arbor Hole Size, In.	Max. Speed RPM.	No. in Ctn.	Wt. Lb. per Std. Pkg.
***1921**	**$3.02**	4	¼	⅜	¾	.005	½	4500	12	3½
***1920**	**1.66**	4	¼	⅜	¾	.0104	⅜, ½, ⅝	4500	12	3⅞
3920	**4.14**	4	⅜	7/16	13/16	.005KC	½	4500	12	4¼
	2.42					.0104	⅜, ½, ⅝	4500	12	3⅞
***1911**	**3.26**	6	3/16	⅜	1½	.005	½, ⅝	4000	12	6
***1910**	**1.94**	6	¼	⅜	1½	.0118	½, ⅝	4000	12	6⅛
3910	**6.08**	6	⅜	5/16	1 15/32	.005KC	½,⅝,¾,1¼	4000	12	8
	3.38					.008	½,⅝,¾,1¼	4000	12	6¾
	2.58					.0104	½,⅝,¾,1,1¼	4000	12	6¾
	2.38					.014	½,⅝,¾,1,1¼	4000	12	6½
†3910-S-94	**6.52**	6	⅜	¼	1 15/32	.0104SV	1¼	4000	6	3⅛
3616	**4.28**	8	⅜	⅜	1 27/32	.008	½,⅝,¾,1,1¼	3600	12	11¾
	3.92					.0104	½,⅝,¾,1,1¼	3600	12	11⅜
	3.56					.014	⅝, 1, 1¼	3600	12	11⅝
†3616-S-88	**8.46**	8	⅜	⅜	1 27/32	.0104SV	1¼	3600	6	6
3532	**5.44**	10	⅝	⅜	2 15/32	.0095	¾,1,1¼,1½,2	3000	6	9⅛
	5.08					.014	⅝,¾,1,1¼,2	3000	6	9
3444	**6.06**	12	½	⅜	2 31/32	.0104	1,1¼,1½,2	3000	6	12⅛
3356	**7.48**	15	⅝	⅜	4 15/32	.0118	1¼, 1½, 2	2500	6	14¾
				Extra Heavily Filled Wheels						
1409	**$15.76**	12	¾	⅜	2 31/32	.005	1¼, 2	3000	6	15
	8.78					.0104	1¼, 2	3000	6	15
1409-S-22	**26.26**	12	¾	⅜	2 21/32	.005KC	1, 1¼, 2	3000	6	16
1409-S-45	**36.30**	12	¾	⅜	2 31/32	.005AB	1¼, 2	3000	6	17½

*Narrow face. †Stainless steel wire.

Osborn Fascut Tampico Section Brushes



No. 2590-PA-20

With abrasive compounds removes burrs, rounds corners on machined parts, removes tool marks, does final finishing. Ringlock method for dense brush face. Fiber locked in by one-piece ring, sleeve; non-shed. Chemical solution stiffens brush. Fibers will not group together; hold abrasives well; wear longer.

Through steel base, about 17/32 inch thick.

Wheels less adapters mount directly on sleeve or shaft if same diameter as brush inside. Brushes available with ventilated pressed board adapters; any number mount on shaft.

Packed 12 in a standard package.

Brush without Adapter or Face Plate

No.	Each	Out-side Diam. In.	In-side Diam. In.	Trim Lgth. In.	Arbor Hole Size Inches	Max. Speed RPM.	Ship. Wt., Lb. per Std. Pkg.
2586-S-20	$2.68	6	2	1 9/16	....	6000	5¼
2588-S-20	3.30	8	3¼	1⅞	....	4800	9⅞
2590-S-20	4.14	10	4¼	2⅜	....	4250	13⅞
2590-S-6	3.40	10	3¼	2⅞	....	4250	12
2592-S-20	4.30	12	4¼	3⅜	....	3600	18⅜
2594-S-20	5.58	14	5¼	3⅞	....	3000	23
2594-S-8	5.02	14	4¼	4⅜	....	3000	20½
2595-S-20	7.54	16	7¼	3⅞	....	2400	30½

Brush with Pressed Board Adapter

No.	Each	Out-side Diam. In.	In-side Diam. In.	Trim Lgth. In.	Arbor Hole Size Inches	Max. Speed RPM.	Ship. Wt., Lb. per Std. Pkg.
2586-PA-20	$3.04	6	2	1 9/16	½, ⅝, ¾, 1, 1¼	6000	5½
2588-PA-20	3.74	8	3¼	1⅞	½, ⅝, ¾, 1, 1¼, 1½, 2	4800	10⅞
2590-PA-20	4.66	10	4¼	2⅜	1, 1¼, 1½, 2	4250	16
2590-PA-6	3.92	10	3¼	2⅞	1, 1¼, 1½, 2	4250	13
2592-PA-20	4.80	12	4¼	3⅜	1, 1¼, 1½, 2	3600	19½
2594-PA-20	6.16	14	5¼	3⅞	1, 1¼, 1½, 1¾, 2	3000	25½
2594-PA-8	5.40	14	4¼	4⅜	1, 1¼, 1½, 2	3000	22½
2595-PA-20	8.28	16	7¼	3⅞	1, 1¼, 1½, 1¾, 2	2400	34½
2598-PA-20	11.24	16	9	4	as specified	2400	43

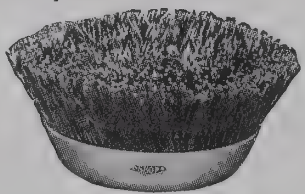
Brush with Metal Adapter

No.	Each	Out-side Diam. In.	In-side Diam. In.	Trim Lgth. In.	Arbor Hole Size Inches	Max. Speed RPM.	Ship. Wt., Lb. per Std. Pkg.
2590-MA-20	$4.68	10	4¼	2⅜	1, 1¼, 1½, 2, 2¼, 3, 3¼	4250	16
2592-MA-20	5.46	12	4¼	3⅜	1, 1¼, 1½, 2, 2¼, 3, 3¼	3600	21
2594-MA-20	6.50	14	5¼	3⅞	1, 1¼, 2, 3	3000	26⅝
2595-MA-20	8.74	16	7¼	3⅞	1, 1¼, 1¾, 2, 2½	2400	30¼

Brush with Face Plate

No.	Each	Out-side Diam. In.	In-side Diam. In.	Trim Lgth. In.	Arbor Hole Size Inches	Max. Speed RPM.	Ship. Wt., Lb. per Std. Pkg.
2588-FP-20	$4.26	8	3¼	1 11/16	⅝, ¾, 1, 1¼	4800	10
2590-FP-6	4.40	10	3¼	2 11/16	1, 1¼	4250	14
2592-FP-20	5.58	12	4¼	3 3/16	1, 1¼, 1½	3600	18
2 94-FP-8	6.22	14	4¼	4 3/16	1, 1¼, 1½	3000	24

Osborn Crimped Steel Wire Cup Brushes



For use on high speed air and electric tools. Approximate diameter of brush part, 6¾ inches; cup shaped, metal back; ½ or ⅝-inch plain arbor holes. Special analysis wire extends 1½ inches out of cup. Nos. with suffix S-30 have ⅝-inch N.C. 11 threaded holes.

Packed one in a container.

No.	4209	4209-S-30	4210	4210-S-30
Each	$9.50	10.04	12.38	12.94
Wire Size, in.	.020	.020	.035	.035
Approx. Ship. Wt., lb.	2¾	2¾	2¾	2¾

Osborn Ringlock Steel Wire Section Brushes

Mounted directly on arbor or shaft.

Specify size arbor hole.

Steel Wire Sections

No.	Each	Diam. In.	Approx. Brush Face In.	Trim Lgth. In.	Wire Size In.	Std. Arbor Hole In.	No. in Container	Wt., Lb. per Std. Pkg.
2601	$1.10	1¼	⅛	29/64	.003	3/16	36	¼
2612	.88	1⅜	3/16	25/64	.005	¼	36	½
2615	.86	1⅜	3/16	25/64	.008	¼	36	¾
2617	.84	1⅜	3/16	25/64	.0104	¼	36	⅝
2623	1.20	1½	7/32	⅜	.006	⅜	36	⅞
2625	.98	1½	7/32	⅜	.008	⅜	36	⅞
2627	.96	1½	7/32	⅜	.0104	⅜	36	⅞
2629	.86	1½	7/32	⅜	.014	⅜	36	⅞
2620	1.12	1 9/16	7/32	13/32	.0025	⅜	36	⅞
2650	1.66	2	¼	9/16	.0025	½	36	1¼
2652	1.18	2	¼	9/16	.005	½	36	1½
2655	1.18	2	¼	½	.008	½	36	1⅞
2656	.98	2	¼	½	.0118	½	36	2
2657	.98	2	¼	½	.0118	9/16	36	2
2658	.98	2	¼	½	.014	½	36	2⅜
2659	.98	2	¼	½	.014	9/16	36	2¼
2678	1.38	2½	9/32	11/16	.0118	⅝	36	2⅝
2679	1.24	2½	9/32	11/16	.014	⅝	36	2⅞
2692	1.78	3	¼	1	.005	½	36	3⅞
2695	1.44	3	¼	1	.008	½	36	3
2699	1.30	3	¼	1	.014	½	36	4

Stainless Steel Wire Sections

No.	Each	Diam. In.	Approx. Brush Face In.	Trim Lgth. In.	Wire Size In.	Std. Arbor Hole In.	No. in Container	Wt., Lb. per Std. Pkg.
2667	$2.08	2	¼	½	.0104SV	½	36	2
2669	2.26	3	¼	1	.014SV	½	36	4

Fascut Treated Tampico Sections

No.	Each	Diam. In.	Approx. Brush Face In.	Trim Lgth. In.	Wire Size In.	Std. Arbor Hole In.	No. in Container	Wt., Lb. per Std. Pkg.
2702	$.66	2	⅛	45/64	.....	¼	36	⅝
2701	.80	2½	5/16	¾	.....	½	36	1⅜
2704	.80	3	⅜	1	.....	½	36	1¾
2707	2.22	4	⅝	1	.....	1¼	12	2¾

Tampico Sections

No.	Each	Diam. In.	Approx. Brush Face In.	Trim Lgth. In.	Wire Size In.	Std. Arbor Hole In.	No. in Container	Wt., Lb. per Std. Pkg.
2703	$.66	2½	5/16	¾	.....	½	36	1¼
2705	.68	3	⅜	1	.....	½	36	1½
2706	2.16	4	¾	1	.....	1¼	12	2⅛

Black Horsehair Sections

No.	Each	Diam. In.	Approx. Brush Face In.	Trim Lgth. In.	Wire Size In.	Std. Arbor Hole In.	No. in Container	Wt., Lb. per Std. Pkg.
2801	$.86	1½	5/32	29/64	.....	¼	36	½

Osborn Knot Type Disc Center Wire Cup Brushes

Single Row

For use with portable tools. Approx. diam. of brush 5¾ in., cup shaped metal back. Special analysis wire extending 1¾ inches out of cup.

Numbers with suffix S-30 have a ⅝-inch N.C. 11 threaded arbor hole. All other numbers have ⅝-inch plain arbor holes. Maximum practical speed 6000 rpm. Unit package, 1 brush.

Steel Wire

No.	7678	7678-S-30	7679	7679-S-30	7680	7680-S-30
Each	$10.32	11.30	14.56	15.54	11.50	23.36
Wire Size, in.	.035	.035	.014	.014	.020	.020
Wt. per Pkg., lb.	2 15/16	3	3	3 3/16	3 1/16	3 3/16

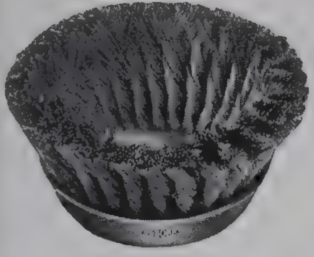
Threaded arbor holes for use only on portable electric tools.

No. 7680-S-3 Stainless Steel Wire

Same as No. 7680 except filled with .020SV stainless steel wire. Arbor hole, ⅝ inch. Weight per pkg., 3 1/16 lb.

No. **7680-S-3**..............................each **$23.26**

Osborn Knot Type Disc Center Steel Wire Cup Brushes



Double Row

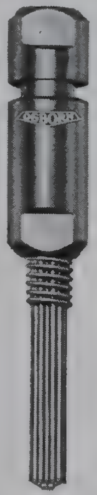
Cup shaped, metal back, special wire extending 1¾ inches out of cup. Numbers with the suffix S-30 have a ⅝-inch threaded arbor hole. All other numbers have ⅝-in. plain arbor holes. Maximum practical speed 6000 rpm.

Diameter, 6 inches.

Packed 1 in a package.

No.	4501	4501-S-30	4502	4502-S-30	4503	4503-S-30
Each	**$19.60**	**20.76**	**16.06**	**17.22**	**14.88**	**16.06**
Wire Size	.014	.014	.020	.020	.035	.035
Ship. Wt. lb.	3¼	3 7/16	3⅜	3 9/16	3 5/16	3 7/16

Osborn End Brushes



No. 91-S-4

Nos. 98 and 99

Nos. 68 and 69

No. 98-S-104

Nos. 99-S-130 and 99-S-140

Used with portable air and electric tools for cleaning and burnishing operations.

Removes welding scale, oxidation, corrosion, sand, grease, etc. from castings, machined parts and other surfaces.

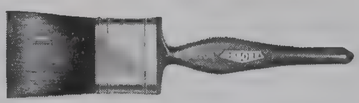
Reaches difficult places otherwise inaccessible.

All brushes with shanks have ¼-inch diameter shanks. Packed 12 in a container.

No.	Each	Type of Brush	Diam. Brush In.	Length Brush In.	Wire Size	Length Shank In.	Approx. Ship. Wt. Lb. Std. Pkg.
98-S-115	**$4.22**	End	½	1	.005	⅞	1½
98-S-104	**2.02**	End	½	1	.0104	⅞	1½
98-S-97	**1.84**	End	½	1	.020	⅞	1½
94-S-5	**3.50**	⅛-In. Pilot Bonding	½	⅜	.004	¾	¾
94-S-21	**3.50**	5/32-In. Pilot Bonding	½	⅜	.004	¾	¾
94-S-20	**3.50**	3/16-In. Pilot Bonding	½	⅜	.004	¾	¾
94-S-22	**3.50**	¼-In. Pilot Bonding	½	⅜	.004	¾	¾
94-S-50	**3.50**	3/32-In. Pilot Bonding	½	⅜	.004	¾	¾
91-S-3	**2.58**	Heavy Duty End	½	3½	.035	§	3
91-S-4	**2.56**	Heavy Duty End	½	3½	.080	§	3
*3H	**4.46**	Heavy Duty Holder	†	†	†	§	9/16
98-S-116	**2.74**	End	¾	1	.005	⅞	1¾
98-S-72	**2.40**	End	¾	1	.0104	⅞	1½
98-S-159	**3.98**	Stainless Steel Wire	¾	1	.0104SV	⅞	1½
98	**2.22**	End	¾	1	.020	⅞	1¾
99-S-95	**3.56**	End	1	1	.005	⅞	1½
99-S-29	**2.88**	End	1	1	.0104	⅞	2¼
99	**2.74**	End	1	1	.020	⅞	2¾
†**99-S-115**	**2.22**	End	1	1	.005SV	⅞	1½
99-S-130	**3.08**	Ruftuf End	1	1⅛	.014	⅞	3
99-S-140	**3.08**	Ruftuf End	1	1⅛	.020	⅞	3
68 "	**2.68**	Circular End	1½	...	.020	⅞	1½
68-S-12	**3.28**	Circular End	1¼	...	.005	⅞	1½
68-S-26	**3.16**	Circular End	1¼	...	.006	⅞	1½
69	**3.86**	Circular End	3	...	.020	⅞	2½
64-S-1	**1.88**	Insertuft Treated Tampico	1	1½	...	§	1
64-S-2	**1.82**	Insertuft Untreated Tampico	1	1½	...	§	1
***2-H**	**.98**	Insertuft Holder	‡	‡	‡	⅞	3/16

*Packed 1 in a container. †Overall length, 3 inches. ‡Overall length, 2 inches. §None.

No. 4480 Osborn Nylon Flat Varnish Brush

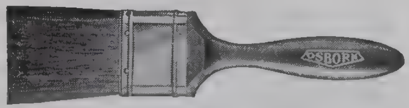


Specially prepared black tapered nylon, double thick, chiseled edge, vulcanized in rubber, nickeled ferrule, walnut lacquer finish panel handle.

Packed 6 in a container.

Size	**1**	**1½**	**2**	**2½**	**3**
No. **4480** each	**$.93**	**1.28**	**1.84**	**2.53**	**3.26**
Approx. Thickness in.	7/16	½	9/16	9/16	5/16
Approx. Length Clear in.	2 3/16	2 3/16	2 7/16	2 11/16	2 15/16
Approx. Ship. Wt. per Doz. lb.	¾	1½	2	3	4

No. 401 XXX Osborn Flat Varnish Brushes



Black Chinese bristle, triple thick, chiseled edge, vulcanized in rubber; nickeled ferrule. Beaver tail handle, walnut lacquer finish.

Width Inches	Each	Approx. Thickness Inches	Approx. Length Bristle Inches	No. in Container	Approx. Shipping Weight Pounds per Dozen
1	**$1.80**	⅝	2⅜	12	1¼
1½	**2.73**	11/16	2⅝	12	2
2	**3.98**	¾	2⅞	12	3
2½	**5.87**	13/16	3⅛	12	4
3	**8.15**	⅞	3⅜	12	5
3½	**10.74**	⅞	3½	3	6½
4	**17.15**	⅞	3¾	3	7¾

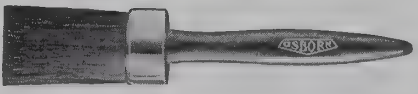
No. 444 Osborn XX Flat Varnish Brushes

Pure black Chinese bristle, double thick, chiseled edge. Vulcanized in rubber, nickeled ferrule, walnut lacquered handle.

Packed 1 dozen in a container.

Width inches	**½**	**1**	**1½**	**2**	**2½**	**3**	**4**
No. **444** each	**$.35**	**.64**	**.91**	**1.22**	**1.96**	**2.38**	**3.70**
Approx. Thickness in.	¼	7/16	½	9/16	⅝	11/16	11/16
Approx. Lgth. Clear in.	1⅝	2⅛	2⅛	2⅛	2⅜	2⅜	2⅞
Approx. Ship. Wt. per Dozen pounds	½	1	1½	2	2¾	3¼	5

No. 441 Osborn Oval Varnish or Paint Brushes



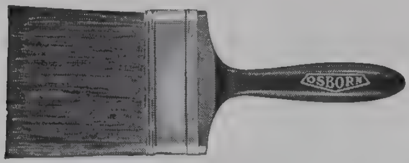
Pure black Chinese bristle, solid center, chiseled edge.

Vulcanized in rubber.

Solid, nickeled steel ferrule and plain handle.

Size No.	**2–0**	**4–0**	**6–0**	**8–0**	**10–0**	**12–0**
No. **441** ea.	**$4.67**	**5.86**	**7.54**	**10.58**	**14.79**	**15.74**
Approx. Width in.	1 9/16	1¾	1⅞	2	2⅛	2¼
Length of Bristle in.	2⅞	3⅛	3⅜	3⅝	3⅞	3⅞
No. in Box	12	12	12	6	6	6
Shipping Weight lb.	3¼	4	4½	5¼	6¼	6½

No. 435 Osborn Wall Brushes

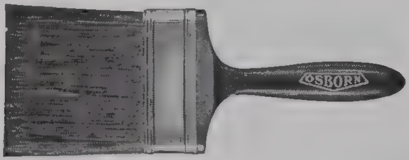


Pure black China bristle, vulcanized in rubber, nickeled ferrule, walnut beaver tail handle.

Packed 3 in a container.

Size.............inches	3	3½	4	4½	5
No. **435**............each	$7.60	10.02	14.41	17.78	24.73
Lgth. Bristles....inches	3½	3¾	4	4⅛	4⅜
Approx. Thickness...in.	1	1	1	1	1
Weight per Dozen...lb.	6	7	8	8½	9½

No. H437 Osborn Wall Brushes



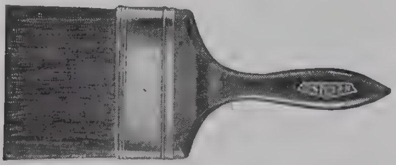
A practical brush for all heavy work.

Made of pure black Chinese bristle, vulcanized in rubber, nickeled ferrule, walnut lacquer finish beaver tail handle.

Packed 6 in a box.

Size..........................inches	3	3½	4	5
No. H**437**........................each	$4.87	6.76	8.96	15.40
Approx. Length Bristles........inches	3¼	3½	3¾	4
Approx. Thickness Bristles.....inches	⅞	⅞	⅞	⅞
Approx. Shipping Weight per Dozen.................pounds	4¾	5¾	6¾	8¼

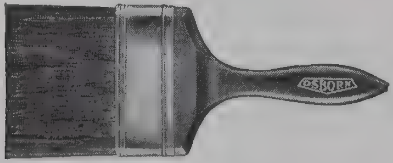
No. 438 Osborn Wall Brushes



Pure black Chinese bristle, vulcanized in rubber, nickel ferrule, walnut lacquer finish handle.

Size.............in.	2½	3	3½	4	5	6
No. **438**.........ea.	$2.54	3.19	4.18	5.55	10.26	14.93
Length Bristle..in.	2½	2¾	3	3¼	3½	3¾
Approx. Thickness ....in.	⅞	⅞	⅞	⅞	⅞	⅞
Approx. Ship. Wt. per Dozen.....lb.	3½	4½	5¼	7¼	8	9

No. 479 Osborn Wall Brushes



Pure, bristle casing, mixed black horse hair and fiber center, vulcanized in rubber.

Nickeled ferrule and walnut lacquered handle.

Packed 6 in a container.

Width....................inches	2½	3	3½	4
No. **479**......................each	$1.79	2.06	2.50	2.92
*Length..................inches	2⅝	2⅝	2⅞	2⅞
Approx. Thickness.........inches	13/16	⅞	⅞	⅞
Approx. Ship. Wt. per Dozen..lb.	3¼	4	5	5½

*Length means length of bristle clear of the ferrule.

No. 536 Osborn Nylon Wall Brushes

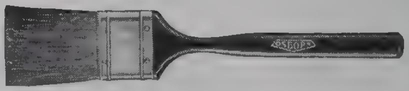
Specially prepared black tapered nylon.

Vulcanized in rubber. Nickeled ferrule. Walnut lacquered beavertail handle.

Packed 6 in a container.

Size.....................inches	3	3½	4	4½
No. **536**....................each	$7.57	8.62	9.92	11.70
Approx. Thickness..........in.	1	1	1	1
Approx. Lgth. Bristle........in.	4⅛	4⅛	4⅛	4⅜
Ship. Wt. per Doz...........lb.	6	7	8	9½

No. 611 Osborn Heavy Flat Trimmers or Sash Tools



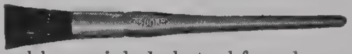
Pure black Chinese bristle, double thick, chiseled edge, vulcanized in rubber, nickeled ferrule.

Long walnut lacquer finish handle.

Packed 1 dozen in a container.

Size.......................inches	1	1½	2	2½
No. **611**......................each	$1.31	2.01	3.24	4.81
Approx. Length Bristle.....inches	2⅜	2⅝	2⅞	3⅛
Approx. Thickness.........inches	7/16	½	9/16	⅝
Approx. Ship. Wt. per Doz.....lb.	1	1¾	2½	3¾

No. 456 Osborn Oval Sash Tools

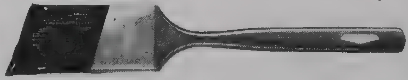


Pure black Chinese bristle, vulcanized in rubber; nickeled steel ferrule; walnut lacquer finish handle.

Sizes 2 to 8, machine chiseled; 10 to 12, cup chiseled.

Size No...............	2	4	6	8	10	12
No. **456**..........each	$.61	.81	1.01	1.62	2.27	3.44
Width..........inches	½	¾	⅞	1 1/16	1⅛	1 5/16
Lgth. Bristle.......in.	1⅞	1⅞	2⅛	2⅜	2½	2¾
Ship. Wt., Doz.....lb.	½	1	1½	2	2½	3½

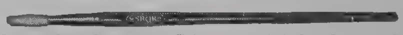
No. 4941 Osborn Flat Angular Sash Tools



Pure black Chinese bristle, chiseled edge, vulcanized in rubber. Nickeled ferrule, walnut lacquer finish handle.

Size...........................inches	1	1½	2
No. **4941**.........................each	$2.08	2.54	3.40
Approx. Thickness.............in.	⅜	7/16	½
Approx. Length Bristle.........in.	1⅞	2	2¼
Ship. Weight per Doz...........lb.	1	1¾	2½

No. 610 Osborn Round Marking Brushes



Overall lengths from 11⅞ to 12½ inches. Plain white handle and bristle, tin ferrule. Packed 12 in container.

Size No....................	1	2	3	4	5	6
No. **610**...............each	$.21	.22	.23	.26	.31	.32
Diameter.............inches	7/64	5/32	3/16	7/32	¼	9/32
Length of Bristle....inches	⅝	¾	⅞	1	1⅛	1¼
Ship. Wt. per Doz....pound	1/16	⅛	⅛	⅛	¼	¼

No. 607 Osborn Round Marking Brushes

Pure squirrel hair; tin ferrule; long red polished handle. Lengths, 12⅛ to 12½ inches. Packed 12 in container.

Size No....................	1	2	3	4	5	6
No. **607**...............each	$.46	.53	.63	.68	.81	.94
Diameter.............inches	5/32	3/16	7/32	¼	9/32	⅜
Length Hair..........inches	¾	13/16	⅞	1	1 1/16	1⅛
Ship. Wt. per Doz.......lb.	⅛	⅛	¼	¼	¼	⅜

No. 930 Osborn Round Painters' Dusters

Pure black horse hair casing, black fiber center. Solid block, staple set.

Natural varnished handle.

Diameter, 2½ inches.

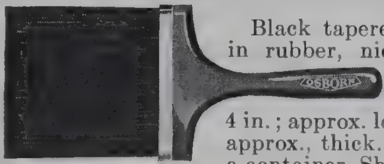
Length of bristle, 3⅞ inches.

Packed 6 in a container.

Approximate shipping weight per dozen, 4½ pounds.

No. **930**.......................................each **$2.42**

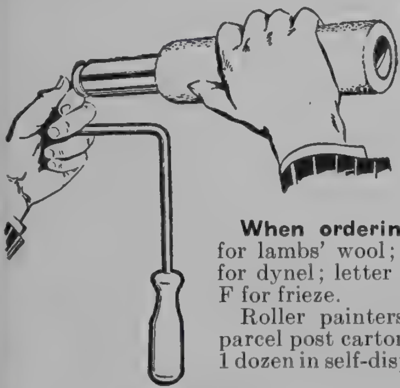
No. N-927 Osborn Painters' Flat Dusters



Black tapered nylon, vulcanized in rubber, nickeled steel ferrule, walnut lacquer finish handle. Width, 4 in.; approx. length bristle, 3¾ in.; approx., thick., 1¼ in. Packed 6 in a container. Ship. weight, 7 lbs.

No. **N-927**.....................................each **$8.32**

Thomas Superior Roller Painters



All steel construction.

Slip-off design. Split-cylinder pressure grip. Heavy steel bearing.

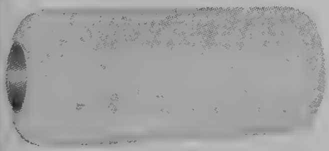
Phenolic treated core with lambs' wool, dynel, mohair or frieze cover.

When ordering, specify No. only for lambs' wool; add letter D to No. for dynel; letter M for mohair; letter F for frieze.

Roller painters packed 1 dozen in parcel post carton; refill covers packed 1 dozen in self-dispenser display carton.

	Roller Painter Complete			Refill Covers		
Size In.	No.	Each	Ship. Wt. Lb. per Doz.	No.	Each	Ship. Wt. Lb. per Doz.
7	**1217**	**$1.97**	8¼	**1217R**	**$.86**	1½
9	**1219**	**2.53**	10¼	**1219R**	**1.20**	1¾

Fence Painter Covers



Suitable for Cyclone type fences and other extremely rough surfaces. Made of 1½-inch Hi-Pile lambs' wool.

Packed 2 dozen in parcel post carton.

No..........................	**1217RHP1½**	**1219RHP1½**
Each........................	**$1.51**	**2.04**
Size......................inches	7	9
Ship. Wt. per Doz.....pounds	2½	3

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

No. 515 Osborn Ox Hair Sign Writers' Brushes

Selected ox hair, chiseled edge, vulcanized in rubber, nickeled ferrule, walnut finish handle.

Packed 1 dozen in a container.

Size........................	**¼**	**½**	**¾**	**1**	**1½**
No. **515**..................ea.	**$1.29**	**1.74**	**2.30**	**2.46**	**4.32**
Length Bristle..........in.	⅞	1	1 1/16	1⅛	1⅜
Approx. Ship. Wt........lb.	¼	¼	½	⅝	⅞

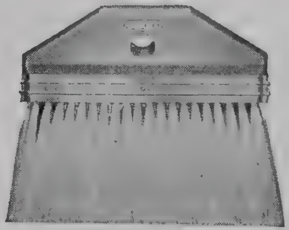
No. 666 Osborn Roof Brushes

Bristles of grey Tampico fiber, 3¼ inches long. Seamless steel, cadmium-plated ferrules. Solid hardwood block, 1 13/16-inch width; one tapered staff hole.

Packed 12 in a container.

No. of Knots............................	**3**	**4**
No. **666**..............................each	**$2.50**	**3.13**
Approx. Length of Block...........inches	6¼	8 1/16
Approx. Ship. Weight per Doz..........lb.	12½	17½

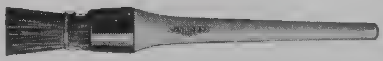
No. 631 Osborn Whitewash Brushes



Mixed hair and fiber, staple set in 3 rows.
Natural varnished block. Tin band.
Packed 12 in a container.

Size...............................inches	**7**	**8**
No. **631**..............................each	**$1.54**	**1.65**
Length...........................inches	3⅜	3⅜
Weight per Dozen.................pounds	8	8½

No. 722 Osborn Bridled Glue Brushes



Pure gray bristle, vulcanized setting, bridled lacquered steel ferrule and plain handle. Size Nos. 2 to 12 inclusive, packed 12 in carton; larger sizes, 6 in carton.

Size No.	Each	Diam. In.	Lgth. Bristle In.	Ship. Wt., Lb. per Doz.	Size No.	Each	Diam. In.	Lgth. Bristle In.	Ship. Wt., Lb. per Doz.
2	**$.85**	¼	1⅛	¼	**18**	**$4.40**	1¼	2⅜	2½
4	**.97**	⅜	1¼	¼	**20**	**5.97**	1⅜	2⅝	3
6	**1.06**	½	1 9/16	½	**22**	**7.07**	1½	2¾	3½
8	**1.52**	⅝	1⅝	½	**24**	**7.12**	1⅝	2⅞	4¼
10	**1.68**	¾	1⅞	¾	**26**	**10.10**	1¾	2⅞	5
12	**1.95**	⅞	2	1	**28**	**12.19**	1⅞	3	5½
14	**2.66**	1	2⅛	1½	**30**	**13.87**	2	3	6½
16	**2.90**	1⅛	2⅜	2	..	.....	...	...	...

OSBORN BRUSHES STOCKED IN FORT WAYNE ONLY

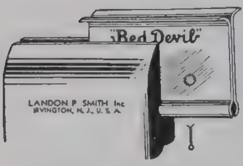
No. 576 Osborn Stencil Brushes

Pure black Chinese bristle, vulcanized in rubber, seamless nickeled steel ferrule. Walnut lacquer finish handle.

Size..........inches	2	4	6	8	10	12	14
No. **576**..........each	$1.13	1.60	1.98	2.79	3.54	4.12	5.56
Diameter.........in.	13/16	1	1¼	1½	1 11/16	1⅞	2
Length Clear......in.	1⅛	1¼	1½	1⅝	1¾	1⅞	2
No. in Carton........	12	12	12	12	6	6	6
Ship. Weight per Doz.......lb.	1	2	3	3½	4	4½	5

Red Devil Interchangeable Scraper Blades

For Wood Scrapers



A Pair of Double-Edge Blades, Partially Removed from Scraper

These blades are made of 21 gage .90 carbon steel, take a keen edge, and hold it.

Blades are easily pushed in and out of handle without screws, gadgets, or special tools.

No. **1½** Double Edge, 1½ Inches Wide, for Nos. 1½, 4, and 40 Wood Scraper; Packed 1 Dozen Pairs in Display Box; Weight, 1 Pound..........per pair **$.25**

No. **2½** Double Edge, 2½ Inches Wide, for Nos. 2½, 5, 50, 8, 14, and 18 Wood Scrapers; Packed 1 Dozen in Display Box; Weight, 1 Pound............per pair **$.40**

Add suffix -A if blade is desired with serrated edge; no extra cost.

Red Devil Double Blade Wood Scrapers

No 2½
Red Devil
SCRAPER
LANDON P. SMITH INC.
IRVINGTON, N.J.
PAT. PENDG.

For carpenters, boat and yacht workers, painters, paper hangers, etc.

Overall length, 5 inches.

No. 2½

Has double 2½-inch blade.

Packed 6 in a display carton; weight per dozen, 3½ pounds.

No. **2½**.........each **$.70**

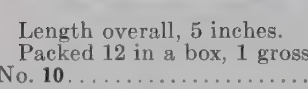
No. 1½

Has double 1½-inch blade.

Packed 12 in a display carton; weight, 2 pounds.

No. **1½**.........each **$.40**

No. 10 Red Devil Wood Scrapers



Replaceable blade scraper.

For windows, sash work and tight quarters.

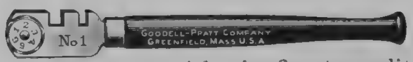
Bright red handle.

Length overall, 5 inches.

Packed 12 in a box, 1 gross in case. Weight, 15 pounds.

No. **10**..each **$.15**

No. 1 Millers Falls Turret Head Glass Cutters



Selected steel turret, with six finest quality wheels. Axles integral parts of the turret. Length, 5⅜ inches.

Hardwood handle with buffed nickel ferrule.

Packed 1 in a box; 12 boxes in a display carton.

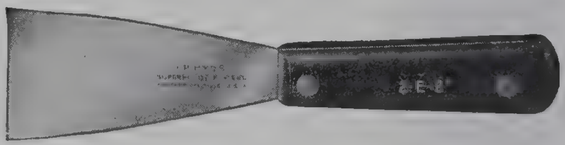
No. **1**, Weight per dozen, 14 ounces......per dozen **$8.40**

Hyde Black and Silver Scrapers

Super hydex heavy gage steel blade; individually hardened; high mirror finish. Tough black plastic handle with single seam. Steel goes clear through to end of handle and extends around butt end.

Size..................inches	3	3½	4	5
No. 2E, Elastic.....per dozen	$14.40	$16.20	$18.00	$24.60
No. 2S, Stiff........per dozen	13.20	.....	17.40	.....

Hyde Black and Silver Putty Knives



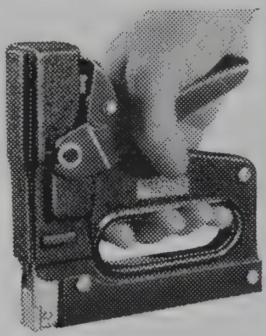
Has super Hydex steel blade with non-bolster Hydite plastic handle. Blade individually hardened and electrically tempered for uniformity. Ground to the proper flexibility of stiffness.

Hydite plastic handle is light in weight and practically unbreakable. Does not shrink. Securely riveted with tubular steel rivets.

Packed 12 in a box.

	Stiff		Elastic	
No......................	2S	2S	2E	2E
Per Dozen...............	$9.60	10.20	10.20	10.80
Size..............inches	1½	2	1½	2
Weight per Dozen.pounds	3	3	3	3

No. T-5 Bostitch Gun Tackers



For installing ceiling tile, tacking plies, installing fabric window panes, applying metal lath strips over joints for plastering, etc.

Shoots staples in one hand operation. The short, narrow base gets into small spaces and drives the staple within one-sixteenth inch of cleat or other obstruction. Locates the staple exactly where wanted. Tacks easily, even into material that is not firmly braced.

No. T5-6 uses medium duty staples, No. STCR-2619, with ¼, ⅜ and ½ inch legs.

No. T5-8 uses heavy duty staples, No. STCR-5019, with ¼, ⅜, ½ and 9/16 inch legs.

Shipping weight, 3 pounds.

No. **T5-6**......................................each **$9.85**

No. **T5-8**......................................each **9.85**

Staples

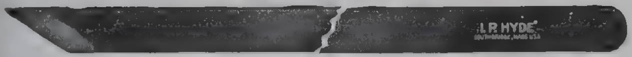
Furnished in boxes of 5,000. Packed 20 boxes to a carton.

	No. STCR-2619			No. STCR-5019			
Length......in.	¼	⅜	½	¼	⅜	½	9/16
Per Box.......	$2.20	2.45	2.80	2.50	2.90	3.35	3.55
Wt. per 5M..oz.	14	16	16	24	32	32	32

Hyde Knife Blades

Hyde Brand

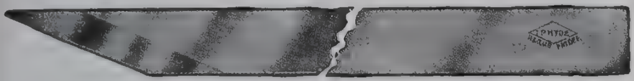
No. H081



Blade size, 9x⅝ inches. Flat, rough finish. Packed 1 dozen in a box. Weight per dozen, 19 ounces.

No. **H081**.................................per dozen **$6.60**

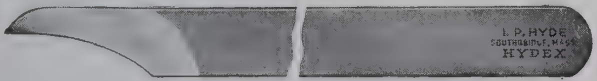
No. H086



Blade size, 9x¾ inches. Flat, rough finish. Packed 1 dozen in a box. Weight per dozen, 23½ ounces.

No. **H086**.................................per dozen **$7.20**

No. H087

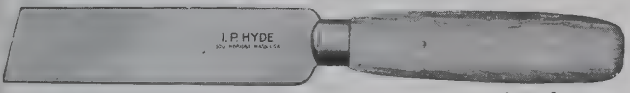


Blade size, 6x⅝ inches. Made of 15-gage steel. Curved point; flat, rough finish. Packed 1 dozen in a box. Weight per dozen, 8 ounces.

No. **H087**.................................per dozen **$6.00**

Hyde Square Point Knives

Hyde Brand

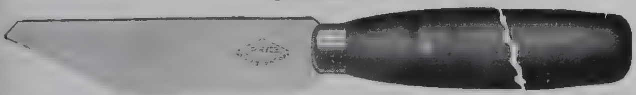


Plain white handle, riveted. Packed 1 dozen in a box.

No.	H2¾x1S	H4x1S	H5x1S	H6x1S	H8x1S
Per Dozen	**$7.20**	**7.20**	**7.80**	**8.40**	**12.60**
Blade Size...in.	2¾x1	4x1	5x1	6x1	8x1
Wt. Doz.....lb.	1⅜	1⅝	1¾	2¾	2¾

No. H4x1-B Hyde Bevel Point Knives

Hyde Brand

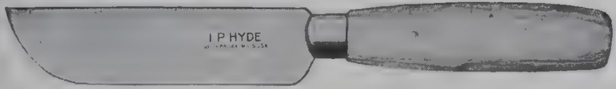


Blade size, 4x1 inches. Plain white handle, riveted. Packed 1 dozen in a box. Weight per dozen, 22½ ounces.

No. H4x1-B.................................per dozen **$8.40**

No. H4x1-HR Half Round Bevel Point Knives

Hyde Brand

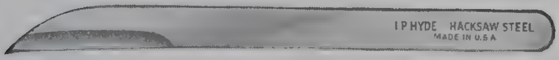


Blade size, 4x1 inches. Plain white handle, riveted. Packed 1 dozen in a box. Weight per dozen, 22½ ounces.

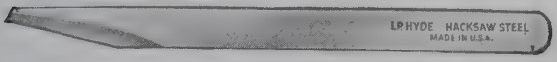
No. H4x1-HR.................................per dozen **$8.40**

No. 2 Hyde Extension Blades

For Rubber Cutting


I P HYDE HACKSAW STEEL
MADE IN U.S.A.

Bevel Point



Sharp Point

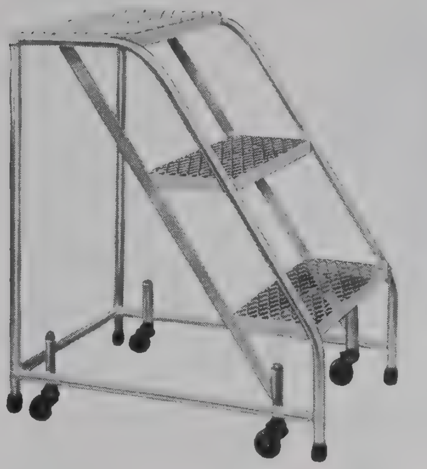
Made of 18-gage hacksaw steel, 4¾ inches long.

Width, ⅜ inches. Packed 12 in a package.

Weight per dozen, ¼ pound.

No. 2, Bevel Point	each	**$4.20**
No. 2, Sharp Point	each	**4.80**

Ballymore Safety-Step Ladders



Used in stock rooms, file departments, bank vaults, libraries and supply rooms, for electrical maintenance and painting and for assembly work where workers must have frequent or occasional access to large machines or vehicles.

All-steel construction. Frame is ¾-inch steel tubing. Steps have either expanded metal thread or Gripstrut. All parts are welded together.

Easily pushed about on large smooth-running, ball-bearing casters. Perfectly stable and safe when in use because the weight of a person causes the rubber-tipped legs to engage the floor. This four-point contact prevents rolling and assures that the ladder will not kick-out.

All ladders are 17½ inches wide if not specifically stated otherwise.

A special rust-resistant coating is used to provide a durable aluminum finish.

When ordering, suffix X or G to No. to indicate type of tread desired.

One Step

For Average Work Levels up to 6 Feet Above Floor

Height, 12 inches; depth at bottom, 14 inches. Step is 10 inches deep and 12 inches above floor.

No. **1-S**, without Casters	each	**$12.00**
No. **1-SC**, with Casters	each	**18.00**
No. **1-SC25**, with Casters; Width, 25½ Inches.	each	**23.00**

Two Step

For Average Work Levels up to 6½ Feet Above Floor

Height: without handrails, 20 inches; with handrails, 38 inches. Depth at bottom, 19 inches; 10-inch rise between steps. Top step is 10 inches deep and 20 inches above the floor.

No. **2-S**, without Handrails	each	**$26.00**
No. **2-S25**, without Handrails; Width, 25½ In.	each	**31.00**
No. **2-SH**, with Handrails	each	**31.00**
No. **2-SH25**, with Handrails; Width, 25½ In.	each	**37.00**

Three Step

For Average Work Levels up to 7½ Feet Above Floor

Height: without handrails, 30 inches; with handrails, 48 inches. Depth at bottom, 26 inches; 10-inch rise between steps. Top step is 10 inches deep and 30 inches above floor.

No. **3-S**, without Handrails	each	**$37.00**
No. **3-S25**, without Handrails; Width, 25½ In.	each	**43.50**
No. **3-SH**, with Handrails	each	**43.50**
No. **3-SH25**, with Handrails; Width, 25½ In.	each	**53.50**

Four Step

For Average Work Levels up to 8 Feet Above Floor

Height: without handrails, 36 inches; with handrails, 52 inches. Depth at bottom, 36½ inches; 9-inch rise between steps. Top step is 10 inches deep, 36 inches above floor.

No. **4-S**, without Handrails	each	**$43.50**
No. **4-S25**, without Handrails; Width, 25½ In.	each	**56.65**
No. **4-SH**, with Handrails	each	**53.50**
No. **4-SH25**, with Handrails; Width, 25½ In.	each	**68.50**

Five Step

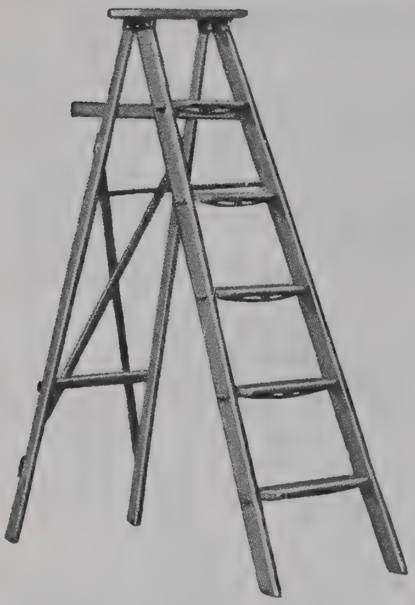
For Average Work Levels up to 9 Feet Above Floor

Height: without handrails, 46¼ inches; with handrails, 68¼ inches. Depth at bottom, 42 inches; 9-inch rise between steps. Top step is 10 inches deep and 46¼ inches above the floor.

No. **5-S**, without handrails	each	**$58.35**
No. **5-S25**, without Handrails; Width, 25½ In.	each	**71.65**
No. **5-SH**, with Handrails	each	**65.50**
No. **5-SH25**, with Handrails; Width, 25½ In.	each	**81.50**
No. **5-SH31**, with Handrails; Width, 31½ In.	each	**93.50**

Six, seven and eight-step ladders are also available; information on request.

MICHIGAN LADDER PRODUCTS STOCKED IN FORT WAYNE ONLY



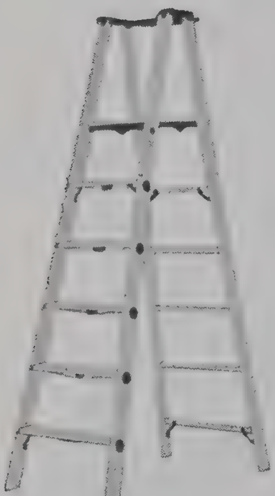
No. 11 Ideal Step Ladders

Made from strictly clear seasoned fir or southern pine. Steps 3⅝ inches wide. Strong steel handle spreader, with U top irons, galvanized or painted, to which top is riveted.

Every step is rodded and trussed so ladder is constantly being drawn together when there is weight on the steps.

Made in 4, 5, 6, 7, 8 and 10-foot lengths.

Michigan Utility Safety Platform Ladders



Constructed of selected ladder stock. Full rodded and trussed. Corner braces under top and bottom step and top and bottom rungs. Rungs are 1⅛ inches in diameter, straight grained hickory.

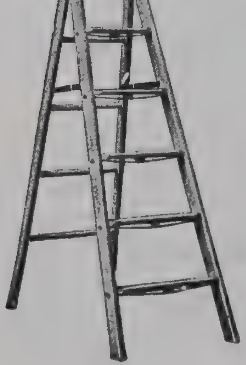
Length is based on height of platform, a 4-foot ladder being 6 feet in height over all. All other lengths the same proportion.

Dimensions

Lengths 4 to 18 feet inclusive: Side rails, 1 x 3¼ inches; steps, $\frac{25}{32}$x4¼ inches; legs, 1x2½ inches.

Approximate weight per foot, 6 pounds.

Michigan Mechanics' Stepladders



Adapted for mechanics and factory purposes where ladders are put to hard use.

The rails and legs are 1-inch thick. Has extra wide top, with pressed steel V irons, every step rodded and trussed.

Equipped with hickory rungs in back which can be used as well as the steps.

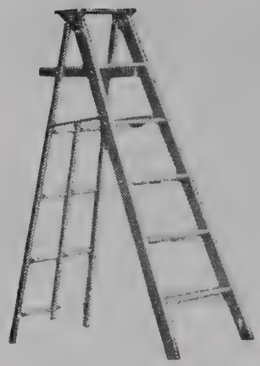
Ladder is held rigid by heavy side spreaders with safety shields.

Made in lengths of 4, 5, 6, 8, 10, 12, 14 and 16.

Weight, 4½ pounds per foot.

Prices upon application.

Eastern Gem Special Step Ladders



Strongly constructed of selected ladder stock. Pressed steel top, steps rodded and trussed, bottom step angle braced.

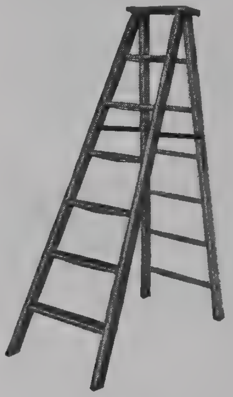
Top $\frac{25}{32}$ inch by 6½ inches; steps $\frac{25}{32}$ inch by 4¼ inches; rails $\frac{25}{32}$ inch by 3¼ inches; legs $\frac{25}{32}$ inch by 1⅝ inches; rungs ⅞ inch in diameter; center rail ⅞ inch by 1¾ inches.

All lengths from 4 feet up are with bucket shelf. Made in 4, 5, 6, 7, 8, 10, 12 and 14-foot lengths.

For painters, janitors, electricians and household use.

Approx. wt. per foot 3½ lb.

Bauer Heavy Duty Step Ladders



Used for shop, farm and factory purposes. Strong, yet not much heavier than ordinary step ladder.

Has wide steps and top. Each step is rodded and trussed.

Back is built like a single ladder with $1\frac{3}{16}$-inch hickory rungs.

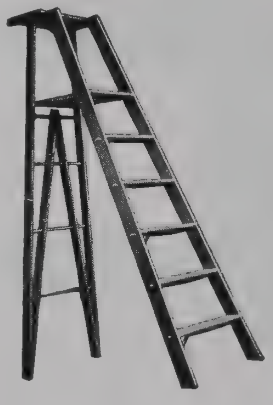
Equipped with a heavy strap iron hinge. Has galvanized ears.

Side rails and legs, 1⅛x2¾ in.

Ship. weight per ft., 4½ lb.

4 to **8** Feet........	per foot	.....
10 to **12** Feet........	per foot	.....
14 to **16** Feet........	per foot	.....
18 to **20** Feet........	per foot	.....

Bauer Wayne Platform Step Ladders

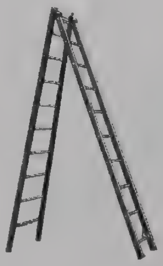


Angle of back construction makes ladder extremely rigid and enables user to work close to walls, etc.

Stands solid. Full rodded and trussed. Knee brace under every second step. All hardware cadmium plated. Platform 24 inches below top of ladder. Size platform, 16 inches wide and 19 inches deep. Width risers 3½ in.; width steps 4⅝ in.; width legs and back braces 2¼ in.; Ladders over 12 feet built proportionately heavier.

Length......Ft.	**6**	**7**	**8**	**10**	**12**
Wt. per Ft...lbs.	5	5	5	5¼	5¼
Length......Ft.	**14**	**16**	**18**	**20**	
Wt. per Ft...lbs.	5½	5½	7	7	

Bauer Handy Andy Combination Ladders

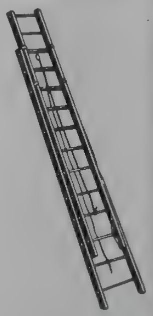


Can be used as an extension, a trestle, two singles or as a step ladder; 5 ladders in one.

Handy for every short ladder use.

Select ladder lumber.

Weight 2 lb. per foot.



Size, Closed.ft.	**6**	**7**	**8**	**9**	**10**	**12**
Size, Extended ....ft.	12	14	16	18	20	24
Each..........	.....	.....	.....	.....	.....	.....

BAUER MFG. CO. PRODUCTS STOCKED IN SOUTH BEND ONLY

Superlight Magnesium Ladders

In normal incline, designed to take loads up to 1,000 pounds on rungs and side rails, yet lightweight enough to be carried or hoisted by woman or child.

Welded of Whitelight Magnesium alloys. Interlocking sections. Filler blocks at bottom of both sections to prevent excessive sinking into earth. Safety feet made of magnesium with rubber tread are available. Side rails are smooth. Fluted rungs. Aluminum alloy bolts and rivets.

Extension ladders furnished with rope and pulley.

Straight Ladders

Length Feet	Per Foot	Approx. Wt., Lb.
8	$2.70	9
10	2.70	11
12	2.70	13
14	2.70	15
16	2.70	18
18	2.70	20
20	2.70	22

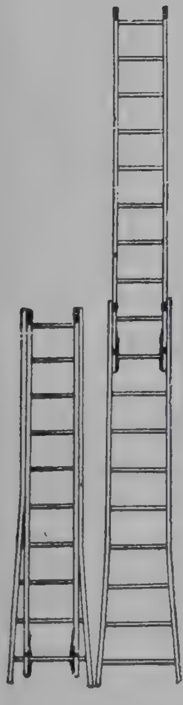
Extension Ladders

Length Feet	Per Foot	Approx. Wt., Lb.
*16	$2.80	19
*18	2.80	21
20	2.80	23
*22	2.80	25
24	2.80	28
*26	2.80	30
28	2.80	32
30	3.20	43
32	3.20	46
*34	3.20	49
36	3.20	51
40	3.20	57
44	3.40	62

*Not carried in stock. †Additional charge for these sizes, $2.25 net.

Rubber safety feet are $4.50 per pair, list.

Michigan Common Automatic Extension Ladders



For painters, contractors, etc.

Double guide irons at top. Regular stock spread bottom but can be straight bottom if desired.

Side rails are clear, straight-grained ladder stock. Dimensions: Outer section rails, $2\frac{3}{4}$, 3 and $3\frac{1}{4}$ inches wide by $1\frac{3}{8}$ inches thick; inner section rails, are $2\frac{3}{4}$ inches wide by $1\frac{3}{8}$ inches thick. Made in even length sections from 20 to 44 feet, inclusive.

Rungs of clear, straight-grained hickory, smoothly finished to $1\frac{1}{8}$ inches in diameter and 12 inches apart. Tenon, $\frac{7}{8}$ inch.

Automatic locks are die-cast, self-balancing, safe and durable and easy to operate. Guide irons made of heavy pressed steel.

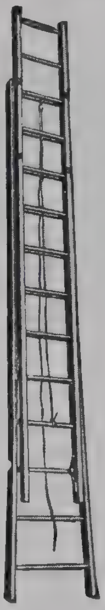
Weight per foot, about $2\frac{1}{4}$ pounds.

Lengths of Sections

Extension Feet	Top Section Feet	Bottom Section Feet
20	10	10
22	10	12
24	12	12
26	12	14
28	14	14
30	14	16
32	16	16
34	16	18
36	18	18
38	18	20
40	20	20
42	20	22
44	22	22

44 to 60 feet made in 3 sections.
Prices upon application.

Bauer Perfection Extension Ladders



Spread Bottom

Side rails are made of sitka spruce. Both lower and upper sections have the same size side rails, $1\frac{3}{8}$x$2\frac{3}{4}$ inches, in ladders up to 32 feet in length. Ladders 34 feet and over have $1\frac{3}{8}$x3-inch side rails.

Rungs are sanded, second-growth hickory, $1\frac{3}{16}$ inches in diameter and are countersunk into the beams $\frac{5}{16}$-inch. The tenons of each rung are double dipped to prevent moisture from getting in to cause decay and rung failure.

Both upper and lower sections are the same length in the 20, 24, 28, 32, 36, and 40-foot ladders. Lower section is two feet longer than the upper section in the 22, 26, 30, 34, 38, and 42-foot sizes.

Equipped with rope and pulley unless otherwise specified. Furnished with either spread (Perfection) or straight (Ajax) bottoms.

Weight, 2 pounds per foot.

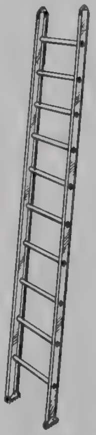
20 to 32 Feet....................per foot ....
34 to 44 Feet....................per foot ....

Ladder without rope and pulley can be furnished at a slight reduced cost.

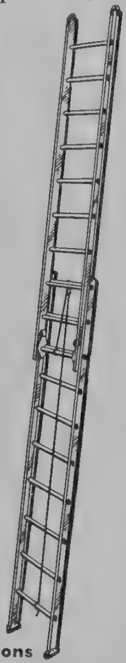
Series 500 Werner Aluminum Ladders

Single and Extension Types

For general mechanics, TV repair men, homeowners, farmers, painters, etc.



Single



2 Sections

Fabricated from No. 61S-T6 heat treated, corrosion resistant, extruded aluminum alloy. Cannot rust or rot.

All edges rounded and in accordance with specifications of Metal Ladder Manufacturers Association.

Aluminum insulated non-skid approved safety shoes, rope, pulley, stamped aluminum spring type locks standard with extension ladders. Safety shoes furnished with single ladders. Strong U-type extruded aluminum side channels.

Rung diameter, $1\frac{1}{4}$ inch. First rung 6 inches from bottom and last rung 6 inches from top. Inside width between rails, base section $14\frac{3}{4}$ inches, fly section, $14\frac{1}{4}$ inches and single ladders, $14\frac{1}{4}$ inches.

Single Ladders

No.	Each	Lgth. Feet	Width of Rail Inches	Approx. Wt. Lb.
508	$20.40	8	$2\frac{1}{2}$	$12\frac{1}{4}$
510	25.50	10	$2\frac{1}{2}$	15
512	30.60	12	$2\frac{1}{2}$	$17\frac{1}{2}$
514	35.70	14	$2\frac{1}{2}$	$20\frac{1}{2}$
516	40.80	16	$2\frac{1}{2}$	$23\frac{1}{4}$

Extension Ladders—2 Section

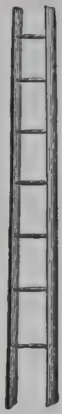
No.	Each	Lgth. Ft.	Section, Ft. Base	Section, Ft. Fly	Width Rail, In.	Overlap Feet	Wkg. Lgth., Ft.	Approx. Wt., Lb.
520-2	$52.00	20	10	10	$2\frac{1}{2}$	3	17	$31\frac{1}{4}$
524-2	62.40	24	12	12	$2\frac{1}{2}$	3	21	37
528-2	72.80	28	14	14	$2\frac{1}{2}$	3	25	$42\frac{3}{4}$
530-2	91.50	30	16	14	3	3	27	54
532-2	97.60	32	16	16	3	3	29	$57\frac{1}{2}$
536-2	109.80	36	18	18	3	3	33	$61\frac{3}{4}$
540-2	122.00	40	20	20	3	4	36	$67\frac{3}{4}$

Extension Ladders—3 Section

No.	Each	Lgth. Ft.	Section, Ft. Base	Section, Ft. Ctr.	Section, Ft. Fly	Width Rail, In.	Overlap Feet	Wkg. Lgth., Ft.	Approx. Wt., Lb.
940-3	$212.00	40	14	14	12	3	4	32	$80\frac{3}{4}$
946-3	243.80	46	16	16	14	3	4	38	$91\frac{1}{4}$
952-3	275.60	52	18	18	16	3	4	44	$101\frac{3}{4}$
*960-3	337.00	60	20	20	20	3	4	52	136

*Has extra heavy 3x$1\frac{3}{8}$-in. side rail for maximum rigidity.

Common Straight Single Ladders



Side rails are made of fir. Width, 2¾ inches. Thickness, 1$\frac{5}{16}$ inches.

Rungs are made of straight grained hickory, 1⅛ inches in diameter, ⅞-inch tenon.

Ladder tapers ½ inch to the foot.

Average weight per foot, 1½ pounds.

Lengths.....feet	**8 to 16**	**18 to 22**
Per Foot.....	**$1.25**	**1.30**

Safe-Hi Ladder Shoes

Listed by Underwriters' Laboratories

Shoe is made of 16-gage cold rolled steel, painted high visibility yellow in compliance with the safety color code for industry.

Made in two widths: 1⅜-inch inside measure for straight ladders and 1$\frac{5}{16}$-inch inside measure for stepladders. The two sizes fit all ladders because side walls of shoes are flexible and can be drawn for unusually thin side rails. Very thick side rails can be dressed down to fit. If width is not specified, 1⅜ inches for straight ladder will be sent.

Holds ladder securely on all surfaces. Cord and Neoprene ridges in tread hold on wet, dry, soapy or greasy surfaces; built in self sharpening spike holds on ice and snow.

Sectional ladders can have all sections equipped and then be nested, joined or used separately, without interference or hazard. Stepladder type includes extra treads for brace legs. Holds all legs securely. Prevents creep or shaking user off balance; makes stepladder safe when folded and used against wall.

All bolts and fittings, and full instructions for installation are included with each pair of shoes.

Shipping weight pair., 1¼ pounds.

Complete, Specify Width.....	per pair	**$3.95**
Replacement Treads with Rivets.....	per pair	**.70**

Bettcher Ladder Jacks

This jack is used by painters and builders.

Made of the best open hearth steel ¼ and $\frac{5}{16}$ inch thick, which makes a safe scaffold without being cumbersome.

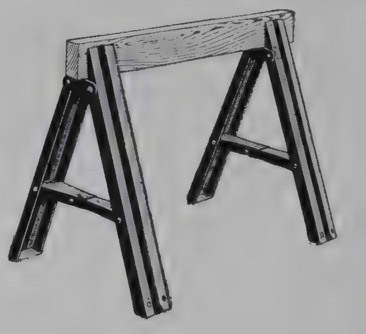
Can be placed in any position desired.

Packed in bags, each bag containing 6 pairs.

Shipping weight per bag, 130 pounds.

Prices upon application.

Toledo Folding Steel Horses



Folds compactly, is easily portable and stores snugly.

Made of heavy gage 3-inch ribbed steel channel. Steel jaws bite down as well as in, binding rail firmly on 3 sides, preventing splitting, side sway; no other bracing required. Any length of standard 2-inch thick lumber may be used for a rail.

Baked enamel finish.

Size No.....	**25**	**32**	**36**
Per Pair.....	....	....	....
Approximate Height.....inches	25	32	36
Approx. Ship. Weight per Pair...pounds	24	27	30

Savogran Paint Brush Cleaner

SAVOGRAN
PAINT BRUSH
CLEANER
Softens - Cleans - Renews

Cleans and softens used brushes. Restores hard, paint-caked brushes and keeps new brushes in good condition.

The 4-ounce size makes a half-gallon of solution, and the 12-ounce package makes 1½ gallons.

Size Pkg.....ounces	**4**	**12**
Each.....	**$.10**	**.25**
No. of Pkgs. to Carton.....	72	36

Du Pont Pro-Tek

A Hand Protection Cream

DU PONT
PRO-TEK
PROTECTS HANDS FROM GRIME & PAINT

Protects against paint, grime, grease etc. Washes off easily; takes dirt with it.

	Jar	Can	Drum
Size Container...	8-Oz.	1-Gal.	5-Gal.
Each.....	**$.49**	**5.00**	**22.10**
No. in Case.....	*24	4	1
Wt. per Case...lb.	18	30	26

*Available 12 to a carton.

Soilax

A cleanser designed for cleaning painted surfaces, walls, woodwork, sinks, bathtubs, refrigerators, detarnishing silver, and for use in laundering.

Soilax
NEW FORMULA
WALLS, WOODWORK, LINOLEUM, TILE
NOW FRAGRANT CONTROLLED SUDS

A pink powder, Soilax turns water green.

Contains no soap, makes no suds, cleans by a new method.

Soilax rinses easily having no deposit to attract dirt.

A fast, powerful cleanser that will not harm delicate surfaces or fabrics.

	1 Lb.	*3-Lb.	4½-Lb.	25-Lb.
Size Container.....	Pkg.	Pkg.	Pkg.	Pail
Each.....	**$.25**	**.69**	**.75**	**3.77**
No. Containers in Case..	24	12	12	1
Shipping Weight.....lb.	27	41	61	28

*With dish cloth premium.

Boraxo

A special blend of fine powdered toilet soap and 20 Mule Team Borax. Removes dirt that ordinary soap cannot reach.

BORAXO
BORAXO
CLEANS HANDS

Works gently even in cold water.

Contains no grit or caustic and leaves the hands soft and smooth.

Packed in 5-pound cartons. Each case contains six 5-pound cartons.

Size	Wt. Lb.
5-Lb. Carton.....	5
1 Case.....	30
3 Cases.....	90
10 Cases.....	300
100 Cases.....	3000

Boraxo and Luron Dispensers

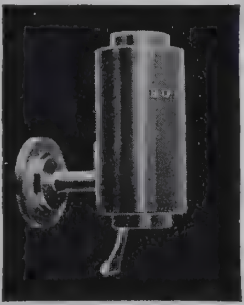
10 to 24 Ounce Capacities

BORAXO
MOISTEN HANDS BEFORE USING

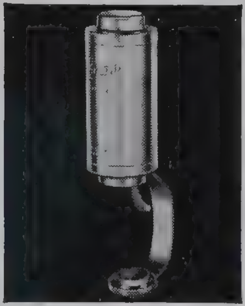
Industrial Model

Luron
WITH LANOLIN
MOISTEN HANDS BEFORE USING

Standard Model



Stainless Steel Model



Stainless Steel Pedestal Mounted

A modern, sanitary and economical dispenser developed to meet every day washroom conditions, is sturdy and practically foolproof. Discharges free flowing, non-clogging Boraxo or Luron into the palm of the hand on upward movement of valve—no spillage, leakage, bleeding or messy basins.

Valve is the only moving part, no wheels or springs to get out of order. Easy to keep clean and fill. Has rigid bracket mountings. Is adaptable to wash fountains. Tops have locking device to prevent loss or theft.

For Boraxo

Industrial Model. Capacity, 24 Ounces. Suitable for factories, foundries, etc. where ornate design is not required. Large capacity requires less frequent service.

Baked Enamel Finish........................each **$3.60**

Stainless Steel Pedestal Bracket. Capacity, 10 Ounces. Adaptable to basins where one faucet is used or other openings provided. Rigid and sturdy. Harmonizes with chrome or nickel fittings.

Each... **$7.75**

For Boraxo or Luron with Lanolin; Specify

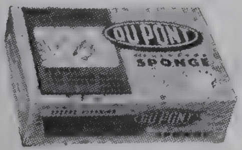
Standard Model. Capacity, 20 Ounces. For industrial installations, gasoline stations, factories, schools, public institutions, ships, etc.

Porcelain Enamel Finish......................each **$4.50**

Stainless Steel Model. Capacity, 10 Ounces. Especially designed for hotels, clubs, professional buildings, department stores and other establishments demanding small and well proportioned fixtures.

Each... **$6.85**

DuPont Cellulose Sponges



Coarse Pore

For dishwashing, window washing, cleaning woodwork, car washing and silver polishing. Square corners reach all cracks and corners. Soft when wet; does not irritate skin or scratch surface. Floats; can be sterilized by boiling; holds 20 times its weight in water. Squeezed dry, can be used like a chamois. Not affected by household chemicals, if not within too strong a concentration. Case includes plain cartons with 12 sponges each.

No.	Each	Size	Dimen. In.	No. per Case	Wt., Lb per Case
4A	**$.20**	Handy	1 x3 x4½	144	6
6A	**.35**	Medium	1$\frac{5}{16}$x3⅜x5⅛	144	10
8A	**.70**	Large	2 x4 x6	72	9
10A	**1.00**	Giant	2$\frac{3}{16}$x4½x7¼	48	8½

Rust-Oleum Rust Preventive Coating

RUST-OLEUM
RUST PREVENTIVE
STOPS RUST!
RUST-OLEUM CORPORATION

Rust-Oleum is scientifically formulated with processed fish oil vehicle and fine grade pigments. Contains no linseed oil. Applied on a rusted surface, oil penetrates rust, driving out air and moisture, producing a tough elastic rust-preventive coating. Fish oil odor has been removed.

Seals the surface of metal against rain, snow, dampness, weather, heat, many other rust-producing conditions.

Economical—may be applied on a rusted metal surface without necessity of sand-blasting or other costly cleaning method.

To prepare surface for application, remove all rust scale, old paint scale, blisters, loose rust, dirt, grease, oil or other foreign matter with a wire brush and scraper. Complete removal of all rust is not necessary but it is essential that all rust scales and old paint scale are removed. Any coating adhering firmly to surface or any rust which has not scaled need not be removed before applying Rust-Oleum. No. 769 DP Red Primer, by brush, should be applied first to all rusted metal; then the selected color in Long Oil Type or Short Oil Type Coatings as a finish coat.

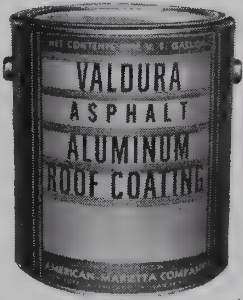
Consistency of Rust-Oleum is heavy. If properly stirred, it is not necessary to add thinning oils. If after thorough stirring, material does not flow freely when trial brushed or sprayed, proper thinning oil is recommended. Use sparingly and stir continuously so thinning oil is blended with Rust-Oleum. Maximum proportions of thinning oil, 5 per cent for brushing and 10 per cent for spraying.

Standard Packages

Packaged in ½ and 1-pint cans, 24 in a case; 1-qt. cans, 12 in a case; 1-gal. cans, 4 in a case (thinning oils, 6 in a case); in 5-gal. cans; and in 30 and 55-gal. drums.

Rust-Oleum can also be furnished in agitator drums.

No. 94 Valdura Asphalt Aluminum Roof Coating



A heat-reflecting and preservative coating for built-up, composition, rolled asphalt-felt and roofs previously coated with liquid roof coating. Vacuum distilled asphalt combined with a plastic synthetic resin gives compatibility over asphalt surfaces.

Waterproofs and protects basic roofing material, reduces interior temperatures as much as 25°.

Average coverage of up to 400 square feet per gallon.

Apply with spray or brush. Available in aluminum only.

1-Gallon Can..........................	per gallon	....
5-Gallon Pail..........................	per gallon	....
55-Gallon Barrel.......................	per gallon	....

No. 560 Valdura Asgum Liquid Roof Protection

This roof coating is made with long fibered asbestos, pure vacuum distilled asphalt and graphite, the indestructible mineral which is impervious to atmospheric elements.

Free from coal tar; requires no heating to apply.

Color, black.

		Can	Pail	Barrel
Size Container..................	gallon	1	5	53
Per Gallon.........................		....	....	....
No. in Case........................		4	..	..
Weight per Case..............	pounds	10	46	475

Also available in plastic.

Valdura Asgum Plastic Roof Protection

Recommended for reconditioning old roofs; also makes a good boiler setting. A combination of fibered asbestos, pure vacuum distilled asphalt, and graphite, the mineral indestructible by weather. Free from coal tar; requires no heating to apply. Applied with a trowel.

Asgum
Roof Protection

Furnished in black only.

The 10-pound cans are packed 4 in a case.

Containers	Per Lb.
10-Lb. Cans	....
50-Lb. Steel Pails	....
530-Lb. Steel Barrels	....

Roofdura

A scientific combination of pure asphalt and genuine fibered asbestos. Free from coal tar. Available in liquid or plastic. Liquid can be used for any waterproofing problem not requiring plastic. Plastic is of a heavier consistency for purposes where holes and cracks are to be made watertight, as in roofs, for sealing around chimneys, etc. Applied with trowel.

Color, black.

No. 570, Liquid

1-Gal. Cans (6 in Case)	per gal.	....
5-Gal. Pails	per gal.	....
55-Gal. Barrels	per gal.	....

No. 571, Plastic

10-Lb. Cans (4 in Case)	per lb.	....
50-Lb. Pails	per lb.	....
550-Lb. Barrels	per lb.	....

Valdura Asgum

Black Only

Used by industrial plants, institutions, roofing contractors and home owners.

Used to reconstruct and restore life to old roofs. Prevents rusting of metal roofs. Seals and waterproofs gutters, spouts, foundations, pipe lines, culverts, skylights and flashings.

Asgum is made of pure vacuum distilled asphalt, long rock-fibered asbestos and graphite.

Resists heat, acid, sun, moisture, fumes, alkali and abrasion.

Available in liquid and plastic. Liquid is smooth flowing, dries slowly and retains elasticity. Apply with 3 or 4 knot brush, or squeegee. Plastic is of heavy plastic consistency that is adaptable for flashing work and sealing all types of cracks. Apply with trowel.

Sizes of containers: 1, 5 and 53 gallons.

Prices furnished upon application.

Valdura Asphalt Aluminum Paint

VALDURA
ASPHALT
ALUMINUM
PAINT

For use as a primer or finish coat on wood, metal, brick or concrete. Provides protection against sun, smoke, salt spray and fumes. Resists moisture. Contains bakelite resin.

Ready-mixed, easy to use; has proved durable in all types of application in industry, institutions and homes.

Can be applied by brush or spray. Dries in 6 hours. Gallon covers up to 600 square feet.

1-Pint Cans (12 in Case)	per can	....
1-Quart Cans (6 in Case)	per can	....
1-Gallon Cans (4 in Case)	per can	....
5-Gallon Pails	per gallon	....
55-Gallon Barrels	per gallon	....

No. 98 Aluminum Paint

Valdura
#98 ALUMINUM
PAINT
VALDURA DIVISION

Compounded with a high grade varnish base and other specially formulated ingredients which will give long life and lasting beauty. Ready mixed, ready to use.

Waterproof, it prevents rust and corrosion.

Dries rapidly.

Covering capacity, 500 square feet per gallon one coat.

1-Pint Can (12 in Case)	each	....
1-Quart Can (6 or 12 in Case)	each	....
1-Gallon Can (4 in Case)	each	....
5-Gallon Steel Pail	per gallon	....
55-Gallon Steel Barrel	per gallon	....

Valdura M&F Enamel

Valdura
Heavy Duty
M·F
ENAMEL
VALDURA DIVISION

For use on new or old wood, concrete, or metal, inside or out.

Compounded from selected pigments and processed alkyd resins; quick drying. Offers resistance to abrasion, vibration, oil, grease, etc.

Dries in 5 to 6 hours.

Available in 27 selected colors.

Coverage per gallon, up to 450 square feet, one coat, depending on the surface.

½-Pint Can	per can	....
1-Pint Can	per can	....
1-Quart Can	per can	....
1-Gal. Can	per can	....
5-Gal. Steel Pail	per gallon	....
55-Gal. Steel Barrel	per gallon	....

No. 991 Valdura High Heat-Resisting Aluminum Paint

Valdura
HIGH-HEAT RESISTING
ALUMINUM PAINT
VALDURA DIVISION

Gives highly heated metallic surfaces a silvery brilliancy. Will stand 1000°F. Apply to bare, clean metal surfaces only, at normal temperatures. Allow to set a few hours before temperature is raised. Second coat may be applied after the first has been subjected to temperatures extremes. For spraying, thin 15 per cent with naphtha. Normal drying time, 4-5 hours. Coverage, up to 600 sq. ft. per gal.

Packed 12, 1-qt. cans in case; 4, 1-gal. cans in case.

1-Quart Can	per can	....	5-Gal. Steel Pail	per gal.	....
1-Gal. Can	per can	....	55-Gal. Steel Barrel	per gal.	....

No. 992 Valdura U-In-Tah Heat-Resisting Asphalt Paint

A special formula containing 99.5 per cent pure Gilsonite asphalt and special heat-resisting oils for use on surfaces subjected to high temperature such as boiler fronts, smokestacks, pipes, incinerators, etc. Resists heat to 600°F.

Valdura
U-IN-TAH
BLACK
VALDURA DIVISION

Can be applied by brush or spray.

Averages 450 square feet per gallon, one coat.

Averages 24 hours drying time under normal conditions.

Furnished in black only.

1-Gallon Can	per gallon	....
5-Gallon Steel Pail	per gallon	....
55-Gallon Steel Barrel	per gallon	....

Du Pont Paint

Flat Wall Paints and Sealers

FLOW KOTE Rubber-Base Wall Paint

Odorless

A washable wall and ceiling paint for use on aged bare plaster, wall board, wallpaper and previously finished surfaces. Acts as own primer. Easy to apply with brush or roller coater. Dries in 30 minutes to a soft velvet-like sheen. May be recoated in 3 to 4 hours. Covers 450 to 500 square feet per gallon with one coat. Furnished in 1-quart and 1-gallon cans.

Primer-Sealer

Black Label—Odorless

A combined priming and sealing coat, for use on porous surfaces such as aged plaster, cement, concrete, brick, wallboard, etc. Dries hard overnight. Spreading capacity one coat, 450 to 500 square feet per gallon. Available in 1-quart, 1 and 5-gallon cans.

Sealer-Coater

Black Label—Odorless

A sealer and undercoat for flat wall paints and enamels. Does not raise fibers on wall board. Dries in less than 2 hrs. to a dull luster. Covers 450–500 sq. ft. per gal. Colors: White and Neutral Gray. In 1-quart and 1-gal. cans.

Enamels and Undercoats

DULUX Maintenance White Gloss Enamel

Black Label—Odorless

For use on interior walls, ceilings and trim of industrial plants, factories, institutions, etc. Dries overnight. Spreading cap., one coat, 500–600 square feet per gallon. Furnished in 1 and 5-gallon cans.

DULITE Enamel Undercoat

A flat-drying, good hiding first coat for use on interior wall, ceiling and trim surfaces. Dries overnight. Spreading cap. 400 to 500 square feet per gal. Furnished in 1 and 5-gal. cans, and 55-gallon drums.

DULUX High Hiding Mildew-Resistant Maintenance White Gloss

Possesses unusual resistance to mildew and fungus growths. Should be used with Mildew-Resistant Undercoat. Dries overnight. Spreading cap., 450–550 sq. ft. per gal. Furnished in 1 and 5-gallon cans, and 55-gallon drums.

Mildew-Resistant Enamel Undercoat

Possesses high resistance to mildew growths; for use as an undercoat for Dulux H.H. Mildew Resistant Mill White Gloss. Dries overnight. Spreading cap., 500–600 sq. ft. per gallon. In 1 and 5-gallon cans and 55-gallon drums.

Mildew-Resisting Oyster White Enamel

For use on interior walls and ceiling of food processing plants under abnormal moisture conditions and where mildew control is important. Dries overnight. Spreading cap. 500–600 sq. ft. per gal. In 1 and 5-gallon cans.

DULUX Color Conditioning Machinery Enamel

A hard-drying enamel for use on machinery and equipment. Possesses high resistance to lubricating oils, etc. For interior use. Dries in 6–8 hrs. Spreading cap., one coat, 500–600 sq. ft. per gal. Colors: Spotlight Buff, Spotlight Green, Horizon Gray, No. 7-B Gray Gloss, No. 8 Medium Green, No. 9 Deep Green, Dark Green, Black and White. Furnished in 1-quart and 1-gallon cans.

TUFCOTE Heavy Duty Enamel

Durable gloss enamel for tractors, farm machinery and road equipment. Dries overnight. Spreading cap., 500–600 sq. ft. per gal. Colors: Black; Caterpillar Yellow; International Harvester Red; Ford-Ferguson Gray; Oliver Green; Allis-Chalmers Orange. In 1-qt. and 1-gal. cans.

Porch and Floor Enamel

A quick-drying, hard, glossy finish for use on exterior wood or aged concrete porches and decks. Dries overnight. Spreading capacity, 500–600 sq. ft. per gal. Colors: Dark Stone, Sandstone, Light Oak, Blue, Red, Light Mahogany, and Sage Green. In 1-quart and 1-gallon cans.

House Paints

No. 42 Outside White Two-Purpose House Paint

Black Label

Formulated with chalk-resistant pigments for use on wood areas of masonry homes or for tinting to light colors.

Allow 2 to 3 days between coats.

Spreading capacity, one coat, 500 to 600 square feet per gallon.

Available in 1-quart, 1-gallon and 5-gallon cans.

DU PONT
TWO-PURPOSE
Outside White
HOUSE PAINT
Master Paints for Master Painters

Cement and Stucco Paint

A protective and decorative paint for aged exterior cement, concrete, stucco, plaster, or brick surfaces. Seals the pores and retards moisture penetration; at the same time preserves the texture of the original surface. Not intended for use on concrete floors. Dries hard in 48 hours. Spreading capacity, one coat, 250 to 350 square feet per gallon depending on porosity of surface.

Harrison Oil Colors

Black Label

For use in tinting interior and exterior finishes.

May be used for tinting Dulux finishes up to 5 per cent.

Packed six of the same color to a carton.

Available in 1x5-inch size tube, ½-pint and 1-quart cans.

Varnishes

DULUX Exterior Spar Varnish

For miscellaneous exterior surfaces, except wood siding. Used on screens and gutters to retard straining. Dries hard in 24 hours. Spreading capacity, one coat, 500 to 600 square feet per gallon. Available in ½ and 1-pint, 1-quart, and 1-gallon cans.

DULUX Interior Varnish

High gloss interior varnish. For use on floors, trim, bars, and furniture. Pale in color, easy brushing, hard drying; excellent resistance to alkali, hot and cold water, and alcohol. Dries hard overnight; may recoat in 6 to 8 hours. Spreading capacity, one coat, 500 to 600 square feet per gallon. Available in ½ and 1-pint, 1-quart, and 1 and 5-gallon cans.

No. 76 Dull Varnish

Black Label

Produces a semi-gloss or dull finish without hand rubbing. For use on general interior woodwork and trim. Used as a finish coat over full gloss varnishes. Not recommended for floors. Dries hard overnight. Spreading capacity, one coat, 500 to 600 square feet per gallon. Available in ½ and 1-pint, 1-quart, and 1 and 5-gallon cans.

Super-Clear Varnish

A pale, high gloss, high build varnish; for general interior use on floors, woodwork and trim. Dries hard in 18 to 24 hours. Spreading capacity, one coat, 400 to 500 square feet per gallon. Available in ½ and 1-pint, 1-quart; and 1 and 5-gallon cans.

Penetrating Wood Finish Varnish

Black Label

For use on interior floors, trim and furniture. Penetrates into and actually seems to become a part of the wood itself. When excess is completely removed by wiping, it imparts a dull gloss finish which does not lie on the surface. When not wiped or when excess is only partially removed, it creates a tough, durable, glossy surface film. May be left in its natural state or waxed to impart additional luster. Dries overnight. Spreading capacity, one coat, 450 to 550 square feet per gallon.

Furnished in 1-pint, 1-quart, 1 and 5-gallon cans.

Du Pont Paint

Metal Finishes

DULUX Metal Protective Paint

Made especially for use on fire escapes, window frames, sash, roofs, fences, lamp posts and all exterior and many interior metal surfaces. Dries in 24–36 hrs. Covers 500–600 sq. ft. per gal. Colors: Black, Red, Light Gray, Green Gray, Gray and Bronze Green. Furnished in 1-quart, 1 and 5 gallon cans.

DULUX Metal Protective Metal Primer

The highest grade, red lead primer, combined with durable DULUX vehicle for long life in retarding rust. Dries in 24–48 hrs. Covers 500–600 sq. ft. per gallon with one coat. In 1-quart, 1 and 5-gallon cans.

DULUX Galvanized Metal Primer

A combination of a synthetic vehicle and zinc dust, each in a separate compartment. Also for use on metal screens and gutters to minimize staining. Hard dries in 24 hrs. Covers 500–600 sq. ft. per gal.; in 1-qt.; 1 and 5-gal. cans.

DULUX Zinc Chromate Primer

A high quality, lead-free primer, possessing excellent rust-inhibiting qualities. For cleaned metal; yellowish-brown color. Dries in 24–36 hrs. Spreading cap., one coat, 500–600 sq. ft. per gal.; in 1-qt.; 1 and 5-gal. cans.

No. 785 Metal Primer

A general purpose primer for metal surfaces. Dark brown shade. Dries in 24–36 hrs. Spreading cap., one coat, 500–600 sq. ft. per gal. In 1-qt., 1 and 5-gal. cans.

Sub-Marine Metal Primer

Made especially for use on clean metal surfaces subject to continuous moist or damp conditions; yellowish-brown color. Dries in 16–20 hrs. Spreading capacity, one coat, 400–500 sq. ft. per gal. In 1 and 5-gallon cans.

Chemically Resistant Finishes

Acid-Resistant Aluminum Paint

Phenolic-Ready-to-Mix

For use on surfaces in contact with mild acid fumes and under moist conditions. Dries in 18 to 20 hrs.; spreading cap., 650–700 sq. ft. per gal. In 1 and 5-gal. cans.

Acid and Fume Resistant Paint

Phenolic

For use on surfaces subject to contact with acids, acid fumes or moisture. Dries in 18 to 20 hours. Spreading cap., 400–450 sq. ft. per gal. Colors: Black, Light Gray, Red, and No. 8 Medium Green. Available as a primer. Furnished in 1 and 5-gallon cans.

No. 20 Black Acid-Resistant Paint

For use where resistance to mild acid and fume conditions is needed. Also possesses good heat resisting qualities. Dries in 18 to 24 hours. Spreading capacity, 400–500 sq. ft. per gal. In 1 and 5-gallon cans.

Heat-Resistant Aluminum Paint

Ready-Mixed

A smooth-flowing, brilliant aluminum finish for use on hot surfaces. Will withstand temperatures up to 400°F. Dries in 18 to 20 hrs. Spreading cap., 400–500 sq. ft. per gallon. Furnished in 1 and 5-gallon cans.

Black Heat-Resistant Stack Paint

For metal surfaces subjected to temperatures as high as 450°F. Bakes on while in service. Dries in 48 hours. Spreading capacity, one coat, 400 to 500 sq. ft. per gallon. Furnished in 1 and 5-gallon cans.

Soft Paste White Lead

Put up in 25, 50, and 100-pound kegs.

White Lead in Oil

Put up in 1 and 5-pound packages.

Dry Red Lead

Put up in 25, 50, and 100-pound kegs.

Litharge

Put up in 25, 50, and 100-pound kegs.
Prices on application.

Strictly Pure Linseed Oil

All standard brands at lowest market prices.

Raw....................................per gallon .....
Boiled.................................per gallon .....

Pure Turpentine

Per Gallon.. .....

Paco Solvent

PACO
SOLVENT
FUEL
METAL CLEANER
SHELLAC THINNER

A denatured alcohol solvent for use in home, shop, laboratory and industry. Can be used on cars and boats.

Ideal for cutting and thinning shellac and for removing shellac and spirit varnish. Apply to wood or metal surface. When old finish is dissolved, wipe surface clean with cloth dipped in Paco Solvent.

Can also be used for washing windows and glass when added to water.

Quickly dissolves oily, greasy deposits; leaves no residue.

Paco Solvent is flammable; keep away from fire, heat and open flame.

Furnished in pint, quart and gallon cans and 5, 30 and 54-gallon drums.

Mortell No Drip

Plastic Coating

A PLASTIC COATING
NO Drip
A. MORTELL COMPANY

An easy-flowing plastic coating that can be applied to any clean, painted or unpainted surface to prevent dripping. Used by industrial plants, storekeepers, home owners, etc.—wherever condensation drip may cause damage to equipment, furniture, etc.

Applied with a brush or trowel to pipes, flat or rounded surfaces; spray equipment used for large factory interiors, etc.

Size Container.............gallons	*1	5	55
Each..............................	$1.90	8.75	90.00
Coverage..................sq. ft.	6	30	330
Weight....................pounds	†58	46	500

*Packed 6 in a carton. †Per carton.

Mortell No Drip Tape

For Covering Cold Water Pipes

NO Drip TAPE
A Plastic Cork Pipe Covering
QUICK AND EASY TO APPLY!
STOPS SWEATING AND CONDENSATION DRIP FROM COLD WATER PIPES
$1.59
NO Drip TAPE

A pliable cork pipe covering which eliminates condensation drip from water pipes. Protects against rust and corrosion; does not absorb moisture. Requires no fasteners. Completely covers valves, joints, tees, etc., straight lengths of pipe.

Rich brown in color, can be painted with cold water paint.

Roll contains enough for about 10 feet of ½-inch pipe.

Packed 12 rolls to carton.

Per Roll.. **$1.69**

GLIDDEN PRODUCTS STOCKED IN SOUTH BEND ONLY

Glidden Paints

Glidden
Glidden
ONE-COAT
SPRAY-DAY-LITE
EGGSHELL WALL FINISH
Everywhere on Everything

Endurance Outside Paint

Glidden Endurance Paint is as nearly perfect as possible to manufacture. Recommended as the perfect finishing coat in two-coat work on wood surfaces. Covers approximately 550 sq. ft. per gal. when used with basecoat (primer).

Colors and white available in 1 and 5-gal. cans.

Glidden
Glidden
ENDURANCE
HOUSE PAINT
Everywhere on Everything

Endurance Basecoat

A remarkable primer for wood surfaces. Covers approximately 600 sq. ft. per gal. White only in 1 and 5-gal. cans.

Spred-Satin

Spred-SATIN—the original latex base wall paint—applies with amazing speed over plaster, porous wallboards, wood, concrete and brick. Available in a large variety of beautiful pastel colors as well as dramatic deep tones. Coverage approximately 550 sq. ft. per gal. Qt. or gal. cans.

Spray-Day-Lite

The finest in maintenance spray finishes for all types of industrial and commercial building interiors. One coat covers any surface smoky or black producing two-coat results. Eggshell finish increases light reflection without eye-straining glare. Colors and white available in 1 and 5-gal. cans and 30 and 55-gal. drums.

Brush-Day-Lite

Companion product to Spray-Day-Lite for brush application.

Mill Flat White

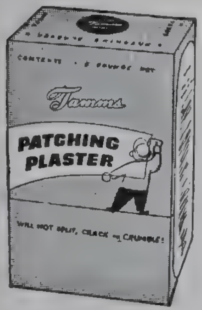
A white oil base coating having good hiding qualities. For general use on walls in industrial plants. Coverage 450 to 500 sq. ft. per gal. White only in 5 gal and 55-gal. drums.

Spred Flat

Spred Flat wall paint is a soft economical flat interior finish that dries in a half hour.

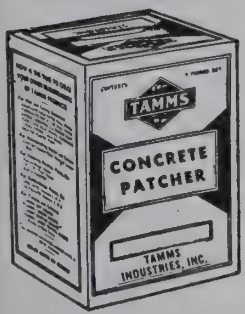
Tamms Patching Plasters

An extra white, slow setting, easy working plaster. Sets in one hour. Will not shrink or crack.


Tamms
PATCHING PLASTER
WILL NOT SPLIT, CRACK or CRUMBLE

1-Lb. Bag, 50 to Case	per bag	....
2½-Lb. Package, 20 to Case	per package	....
5-Lb. Package, 10 to Case	per package	....
15-Lb. Bag, 4 to Case	per bag	....
100-Lb. Bag	per bag	....

Tamms Concrete Patchers



For interior or exterior patch work on concrete, stucco, brick and wall masonry surfaces.

3½-Lb. Packages, 24 to Case	per package	....
6½-Lb. Package, 10 to Case	per package	....
100-Lb. Bag	per cwt.	....

Florenamel

A wear-resisting, protective and decorative coating for exterior and interior wood floors. Quick-drying. Under normal conditions can be walked on in six to eight hours. Available in a number of attractive colors. Coverage 600 to 700 sq. ft. per gal. Qts., 1 and 5-gal. cans.

Gliddenspar Varnish

Gliddenspar Varnish is recommended as the finest varnish available today for either exterior or interior use. Coverage 650 sq. ft. first coat and 750 to 850 sq. ft. per gal. second coat. Available in qts. and gal.

Japalac Enamel

Japalac Enamel flows, spreads and brushes out quickly and easily. The brilliant colors may be rain-soaked or exposed to the sun and still they will look new for a long time. Available in qts. and gal. Coverage approximately 500 sq. ft. per gal.

Machinery Enamels

A synthetic fast drying enamel for machine tools and equipment. Extremely tough film insures long wear. Excellent resistance to cutting oils, compounds, heavy impact and abrasion. Can be applied by brush or spray available in qts., 1 gal. and 5-gal. cans.

Green Glass Coat

A light green paint for use on industrial building windows for protection from direct rays of the sun.

Shellac

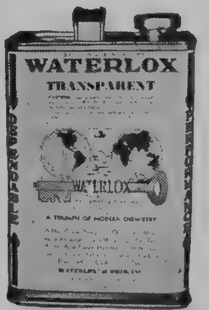
In order to insure the most desirable varnish undercoating for finishing interior woodwork we recommend only the best grade of cut shellac made of pure shellac gums. This is furnished in 5-gallon cans or smaller in both white and orange shellac.

Grade Cut	pounds	4
Orange	per gallon	.....
White	per gallon	.....

Waterlox Transparent Waterproofing Liquid

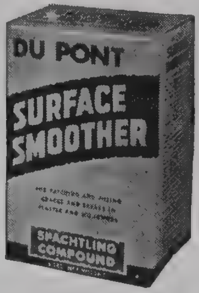
A tung oil product which can be brushed, sprayed or dipped. A proper application will dry overnight. It is elastic and will not chip, crack or peel. Resists the action of salt air or water, acids, acid fumes, calcium chloride, tri-sodium phosphate and destroys the action of Glauber Salts and hot spots in plaster walls and mortar joints. Maintains its qualities from minus 50 to plus 700°F.

Used as a varnish it can be applied to all household articles, floors, window sills, walls and other places where a protective covering is necessary. Does not leave a slippery surface but produces a gloss comparable to a waxed surface. Used as a vehicle with paints or enamels it adds durability and service to the covering.



Description	Wt. Lb.	Each
½ Pint	...	$.60
1 Pint, 24 cans per Case	30	.95
1 Quart, 24 Cans per Case	56	1.70
1 Gallon, 6 Cans per Case	50	5.50
5 Gallon	40	5.10
30 Gallon	235	4.70
55 Gallon	435	4.50

Du Pont Surface Smoother

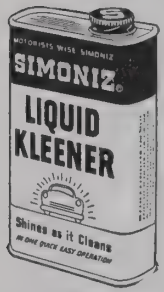

DU PONT
SURFACE SMOOTHER
SPACHTLING COMPOUND

A powder to be mixed with water for filling up cracks and crevices in all types of wall and ceiling surfaces.

Does not shrink with age.

Standard case: 12 1-pound packages; 10 5-pound packages.

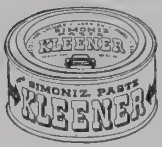
Simoniz Kleener


MOTORISTS WISE SIMONIZ
SIMONIZ
LIQUID KLEENER
Shines as it Cleans
IN ONE QUICK EASY OPERATION

Liquid

Cleans and shines automobile finishes in one easy operation. Speedy. Cleans thoroughly. Does not cover up dirt with oily here-today-gone-tomorrow shine. Restores natural beauty and color to all lacquers and enamels. Marvelous for quick shine-up, also prepares finish for Simoniz.

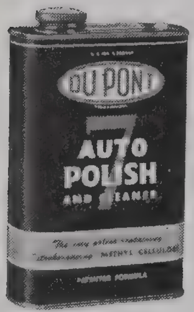
Size Container	1-Pt.	1-Gal.
Each	**$.98**	**3.03**
No. in Case	12	4
Wt. Per Case.......pounds	17	40½


SIMONIZ KLEENER
SIMONIZ PASTE KLEENER

Paste

Recommended for extremely dull automobiles. Restores luster and color. Brings back all beauty the finish had when new. Also prepares it for Simoniz.

Size Container	12-Oz.	1-Gal.
Each	**$.98**	**4.45**
No. in Case	12	4
Weight per Case.......pounds	11¼	42¾


DU PONT
7
AUTO POLISH AND CLEANER

No. 7 DuPont Auto Polish

A rapid and easy to use polish for Duco, lacquer, baked enamel, varnish, and all automobile finishes.

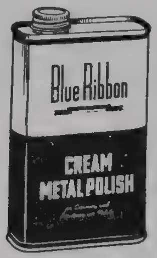
It is fast drying, requires little rubbing and leaves a hard, dry finish with no oily film to catch and hold dust.

Dries under wet or damp conditions. Contains no acid or harmful ingredients.

Size Container	1-Pt.	1-Gal.
No. 7.......each	**$1.25**	**6.25**
No. in Case	24	4
Weight per Case.......pounds	35	41

OSBORN

Blue Ribbon Cream Metal Polish


Blue Ribbon
CREAM METAL POLISH

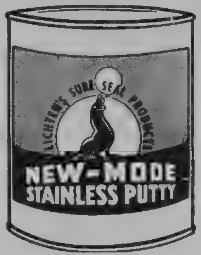
A safe polish for brass, copper, nickel, monel metal, chromium, etc.

Quickly removes tarnish without injuring the finest metal plating.

Requires little polish and effort to obtain a mirror-like brilliance, and the lasting quality of the luster makes frequent polishing unnecessary.

Size Can	½-Pt.	1-Pt.	1-Qt.	1-Gal.
Each	**$.35**	**.61**	**1.09**	**2.61**
No. Cans in Case	12	12	12	4

Lichten's New Mode Plumbers' Stainless Putty


LICHTEN'S SURE SEAL PRODUCTS
NEW-MODE STAINLESS PUTTY

Not oily, does not harden and become unusable, crack or crumble. Does not stain floors, concrete, marble or other material. Always ready for use.

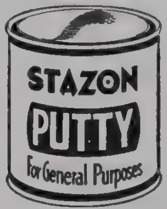
Contains a germicide which destroys bacteria.

Will not deteriorate with age, or dry up in can if not used immediately; eliminates waste.

Packed in cans.

Size Can.....lb.	**1**	**2**	**3**	**4**	**5**	**15**	**25**	**50**	**100**
Each	**$.24**	**.44**	**.60**	**.78**	**.95**	**2.64**	**4.25**	**8.00**	**16.00**
No. in Case	48	24	12	12	12	4	1	1	1
Shipping Wt. per Case.......lb.	50	50	38	50	65	65	25	50	100

Stazon Commercial Putty

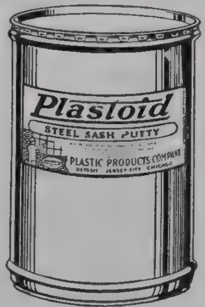

STAZON
PUTTY
For General Purposes

Made primarily for wood sash work, but is also used for all general purposes around the home, office, or factory.

Especially processed to be non-settling.

Put up in 1, 5, 16 and 25-pound cans.

Plastoid Steel Sash Putty

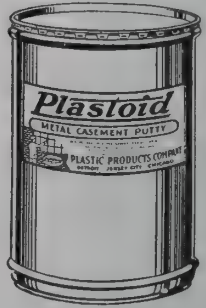

Plastoid
STEEL SASH PUTTY
PLASTIC PRODUCTS COMPANY

Especially made for glazing steel sash of the regular factory type where the glazing is on the inside.

Furnished in red and gray.

Put up in 1, 5, 16, 25 and 100-pound cans.

Plastoid Metal Casement Putty


Plastoid
METAL CASEMENT PUTTY
PLASTIC PRODUCTS COMPANY

A quick setting material recommended for the glazing of metal casement sash where glazing is on the outside.

Furnished in natural color only.

Put up in 25 and 100-pound cans.

Pecora Weathercalk Calking Compound

A mastic for calking joints around frames and any other construction where expansion and contraction must be taken care of; for glazing where construction is subject to vibrations or acid fumes.

PECORA
RHINO BRAND
WHITE
WEATHERCALK
GUN CALKING
COMPOUND
PECORA PAINT COMPANY

Adheres to any surface; will not stain, crack or run.

Can be painted over with no danger of bleeding through paint. Made in one grade of two consistencies.

Knife Consistency

For use with a hand trowel or similar hand tool. Put up in 15, 50, and 80-pound containers.

Gun Consistency

For use with a calking gun. Put up in ¼, 1, 5 and 55 gallon containers; also in $\frac{1}{10}$ and ⅛-gallon cartridges.

Prices upon application.

Plasti-Glaze Glazing Compound

PLASTI-GLAZE
A Quality Glazing Compound
PLASTIC PRODUCTS COMPANY

A preparation for permanently glazing either wood or metal sash.

Adheres securely to glass and sash. Joint is airproof and waterproof. Remains permanently rubbery and plastic, contracting and expanding with temperature changes. Contains asbestos and eleven pigments and oils.

Works equally well on metal sash, primed and unprimed wood. Clean to handle, ready for use as it comes in the can. Requires no thinning.

Container	½-Pt.	1-Pt.	1-Qt.	1-Gal.	5-Gal.	10-Gal
Each....	......	......	......	......	......	......
No. in Ctn.	24	24	12	4	......	......
Wt....lb.	1	2	4	16	80	180

Calbar Caulk-O-Seal Combination Cartridges

For use with caulking guns. Seals cracks around doors and windows with an elastic, lasting, plastic substance.

Easy to load and clean; nozzle type.

No. 8½. Length, 8½ inches. Ten to a gallon. Packed 10 to a carton, 40 to a shipping case.

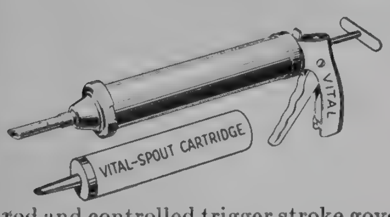
Weight, 56 pounds.

No. 10. Length, 10 inches. Eight to a gallon. Packed 8 to a carton, 32 to a shipping case. Weight, 56 pounds.

Color No.	No. 8½ Each	No. 10 Each	Color	Color No.	No. 8½ Each	No. 10 Each	Color
107	$.52	....	Black	126	$.52	$.62	Std. White
121	.52	$.62	Natural	125	.55	.66	Brilliant White
106	.52	.62	Slate Gray				
122	.52	.62	Limestone	110	.63	.73	Aluminum

Model L1G Vital Painters' Caulking Guns

1-Pint Capacity



For standard cartridges.

Has breech lock, quarter turn, gasket lined cap. Provides fast loading with bulk compound or cartridges. Has smooth, cam driven rod and controlled trigger stroke governing flow of material.

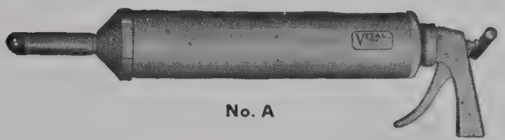
Rotary handle allows leverage at any angle for out of the way places.

Length barrel, 9½ inches. Diameter barrel, 2⅛ inches. No. 12, ⅜-inch oval nozzle.

Packed 12 in a case. Weight per case, 36 pounds.

Model L1G....................................each **$4.50**

Vital Caulking Guns and Nozzles



No. A

A light weight gun for professional use. Provides fast loading with bulk compound. Trigger ratchet drive offers no resistance to large bulk load of heavy materials.

No.	Each	Barrel Inches	Capacity	Loading	End Caps	Nozzle Size In. Type	Nozzle No.
C	**$6.00**	11x1¾	1 Pt.	Bulk	Thrd.	½ Oval	5
B	**7.50**	12x2⅛	1 Pt. 2 Oz.	Bulk	Thrd.	½ Oval	5
B15	**8.50**	15x2⅛	1 Pt. 6 Oz.	Bulk	Thrd.	$\frac{9}{16}$ Oval	16
A1	**15.00**	12x2¾	1 Qt.	Bulk	Thrd.		
D3	**4.50**	9½x2⅛	1 Pt.	Bulk or Cartg.	Breech Cap	⅜ Oval	12
D1	**4.50**	9½x2⅛	1 Pt.	Bulk or Cartg.	Thrd.	⅜ Oval	12
L1	**6.00**	11x2⅛	¾ Qt.	Bulk or Cartg.	Breech Cap	⅜ Oval	12
A	**24.00** ***25.75**	16x3½	⅝ Gal.	Bulk	Mach. Thrd.	1 Oval	8

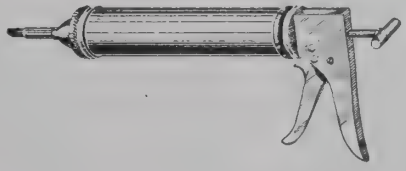
Nozzles

No.	Each	Size Opening In.	Type	No.	Each	Size Opening In.	Type
1	**$.55**	$\frac{1}{16}$	Rect.	**15**	**$1.00**	$\frac{3}{16}$x1	Flat
2	**.55**	⅛	Round	**16**	**.45**	$\frac{9}{16}$	Oval
3	**.45**	¼	Oval	**11**	**.55**	⅜	Triangle
4	**.55**	¼	Triangle	**12**	**.45**	⅜	Oval
5	**.45**	½	Oval	**17**	**1.65**	⅜	Stop-Caulk
6	**.55**	½	Triangle	**19**	**1.25**	$\frac{3}{32}$	Grouting
7	**1.00**	½x¾	Rect.	†10B	**2.75**	2½x⅛	Seaming
11A	**.90**	$\frac{3}{16}$	Triangle	‡10D	**2.75**	2½x⅛	Seaming

*With reducer. †Threaded. ‡Breech.

Calbar Pressure Guns

With Ratchet Rod and Triple Threaded Cap



For caulking, glazing, greasing, seaming, or applying any plastic or semi-liquid material. Pressure of 300 to 500 pounds can be developed with ordinary effort with this gun.

Advantages: standard pipe thread nozzle; triple thread screw end cap—put on in 2½ turns; threaded cylinder—entire gun can be taken apart easily; handle grip—comfortable well-balanced feel; finger trigger guard for comfortable operation; all steel construction—rustproof finish; strong and durable—light in weight; carefully machined parts; instant stop-flow pressure release—operates by turning rod handle one-quarter turn; fills by suction.

No. 22—RTT. Contains 1 extra heavy treated leather plunger cup and spring expander. One No. 8 nozzle.

No. 32—RTT. Contains extra heavy treated leather plunger cup and spring expander. When required for cartridge use, specify cartridge guns. One each of the Nos. 3, 8 and 17 nozzles with each gun.

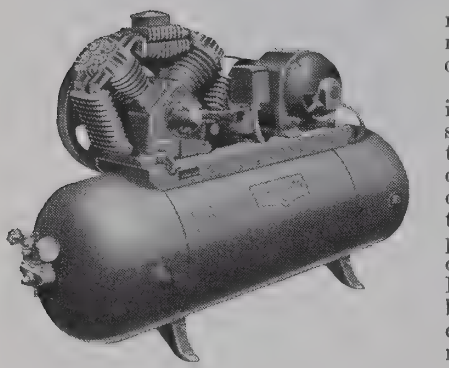
No. 45—RTT. Contains 2 extra heavy treated leather plunger cups and spring expander. One each of the Nos. 3, 8 and 17 nozzles with each gun.

No.	22-RTT	32-RTT	45-RTT
Each	**$4.10**	**5.20**	**7.30**
Capacity......cubic inches	22	32	45
Size Cylinder........inches	2x7	2x10	2x14
No. in Carton	25	25	12
Weight............pounds	3	3½	4

Type V DeVilbiss Air Compressors

175 Pound Pressure Rating

A.C.—2 Stage



Precision workmanship, engineering and high quality materials.

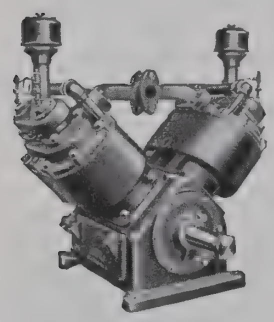
Numerous fins in 4-cylinder 2-stage pump. Intercoolers, aftercoolers keep down temperature. Balanced pistons. Forged crankshaft. Heavy load ball bearings, smooth cylinders for free running, quiet operation. Load free starting device controls flow lubrication. Alloy steel disc valves.

No.	220/440 V. 50/60 Cy. ⅔ Ph. Each	230 V. 50 or 60 Cy. 1 Ph. Ea.	Hp.	Displacement Cfm.	Compressor No.	Stroke In.	RPM.
VAF-5006	$553.50	*$623.50	3	15.60	432	3½	465
VAG-5006	625.00	870.00	5	23.69	432	3½	705
VAS-5006	1100.00	......	7½	36.81	445	4	500
VAT-5008	1237.00	......	10	47.86	445	4	650
VAV-5008	1416.00	......	15	66.27	445	4	900

No.	VAF-5006	VAG-5006	VAS-5006	VAT-5008	VAV-5008
†Cap......gal.	80	80	. 80	120	120
Height ..inches	44	44	47⅜	51⅛	51⅛
Width ...inches	22¾	22¾	25¾	27¼	27¼
Length ..inches	66½	66½	66½	72½	72½
Ship. Wt. ...lb.	820	830	1254	1447	1490

*115 volts also. †Tank approximate.

Model C Curtis Water-Cooled Air Compressors

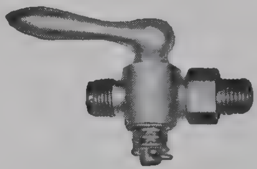


Head with large area short intake passages, oversize ports, straight line air flow, and cooled air intake. Air enters cylinder at low temperature. Peak pressure and temperature of compression are decreased. Excessive head cooling is avoided, evaporation of oil from piston and cylinder walls, and precipitation of carbon is reduced.

Bore and Stroke.........inches	**5½x5¼**	**6½x5¼**
Displacement...cu. ft. per min.	115.7–231.0	161.2–322.5
Horsepower: At 80 Pounds.....	18.0–37.3	26.2–55.4
At 100 Pounds....	19.5–35.7	29.4–51.8
At 125 Pounds....	21.2	31.9
Shipping Wt. Tight Pulley..lbs.	1400	1450

DeVilbiss Air and Fluid Valves

Type H-87 Air Valve



With ¼-inch male pipe thread one end, 9/16-inch—20 male thread on other end.

Shipping weight, ¾ pound.

Type H-87...each **$1.60**

Type L-72 Air or Fluid Valve

With ⅜-inch male pipe thread one end, ⅝-inch—18 male thread other end.

Shipping weight, ¾ pound.

Type L-72...each **$1.70**

DeVilbiss Type P-GDS Spray Guns

A suction feed spray gun for operating on low air pressure and with smaller, low capacity air compressing equipment.

For light duty painting and finishing operations, sprays materials adapted to suction feed with a well defined pattern and smooth and uniform finish. Two cubic feet of air a minute is required for operation.

The spray gun is well balanced and easy to handle and operate. Body and handle are a one-piece casting. Short and easy trigger pull. Quart cup. Bent fluid tube allows fluid to be drained from cup in tilted position.

Type P-GDS Spray Gun will produce a fan spray approximately 6 inches wide at a distance of 6 inches from the gun. It is available with or without bleeder valve.

Has ¼-inch N.P.S. for air connection and ⅜-inch N.P.S. for fluid connection.

Type P-GDS-531 Suction Feed Spray Guns

With bleeder valve. For use with compressing outfits having unloading mechanism or in air lines with pressure regulating device.

Type P-GDS-531, Shipping Weight, 2½ Pounds . each **$19.50**

Type P-GDS-532 Suction Spray Guns

Without bleeder valve. For use with small compressing outfits having no unloading mechanism or with air supply which does not have a means of pressure regulation.

Type P-GDS-532, Shipping Weight, 2½ Pounds . each **$19.50**

Type P-GCS-417 Suction Feed Cup Attachments

Quart capacity. Shipping weight, 1 pound.

Type P-GCS-417..............................each **$5.80**

If 9/16″–20 for air and ⅝″–18 for fluid connections are desired, remove prefix P from No. when ordering.

No. P-NCD-602 DeVilbiss Spray Painting Outfits

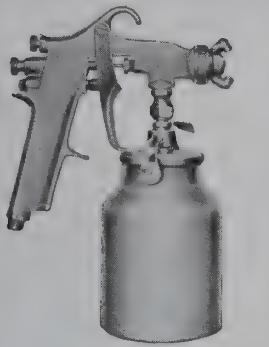
For large household painting jobs. Ship. wt., 65 lb.

No. P-NCD-**602**, Outfit Complete.............each **$120.47**

Outfit Consists of:

No. P-NCD-**501**, ⅓-Horsepower Air Compressor. each	**$65.50**
No. P-GD-**502**, Spray Gun & 1 Qt. Press. Feed Cup.ea.	**16.20**
No. P-GD-**602**, Adapter, Conn. Gun to Fluid Hose.ea.	**.75**
No. P-QN-**5002**, 2-Gal. Press. Feed Paint Tank..each	**27.75**
No. P-H-**5205**, 15-Foot Length ¼-Inch Braid Covered Air Hose (Compressor to Paint Tank)........each	**2.84**
No. P-H-**5204**, 12-Foot Length ¼-Inch Braid Covered Air Hose (Paint Tank or Comp. to Gun).....each	**2.47**
No. P-H-**5110**, 12-Foot Length 5/16-Inch Fluid Hose (Paint Tank to Gun)..........................each	**4.96**

DeVilbiss Type P-CM Production Spray Guns


Type P-CM-605

For medium or light production finishing and for furniture and equipment refinishing, interior decorating, and touch up.

Produces a full, well defined spray pattern adjustable from round to wide fan. Has comfortable grip, broad two-finger trigger. Air consumption, 4 to 5 cubic feet per minute. Can be used with compressors as small as ¾ hp.

Either suction or pressure material feed can be used. For suction feed, the Type P-KS cup attachment is recommended. Has 24 fluid ounce capacity and handy, quick-detachable lid coupling.

Has ¼-inch N.P.S. for air connection and ⅜-inch for fluid connection.

Type P-CM-**501**, Spray Gun Only, Ship. Wt. 2 lb. .... each **$27.50**

Type P-CM-**605**, Combines Type P-CM-501 Spray Gun and Type P-KS-503 Suction Feed Cup Attachment, Ship. Weight, 4 Pounds .... each **$34.50**

If 9/16″–20 for air and ⅝″–18 for fluid connections are desired, remove prefix P from No. when ordering.

Type P-EGA-502 DeVilbiss Touch-Up Spray Guns

No. P-EGA-502 with PC-539 Cup

For fine painting and decorating; shading, high-lighting, stenciling, plastic, etc.

Made of corrosion resistant materials.

Can be used from a limited supply of air with all the common spray materials. Slender, pointed nozzle permits accuracy on fine work. Lever type trigger action enable operator to control fluid flow. Spray pattern is fully adjustable.

Has ¼-inch N.P.S. for air connection and fluid connection.

Nozzle Combinations

No.	Pattern Shapes	Size, In.	No.	Pattern Shapes	Size, In.
395-F	Adj. Fan to Round	4½	**125**-G	Round Only	3
390-F	Adj. Fan to Round	4	**392**-H	Adj. Fan to Round	2
124-F	Round Only	3	**126**-H	Round Only	2
394-G	Adj. Fan to Round	3			

When ordering, specify nozzle combination desired.

Type P-EGA-**502** Spray Gun Only with Any Std. Nozzle Combination; Ship. Wt., ¾ Pounds..each **$25.50**

If 9/16″–20 for air and fluid connections are desired, order EGA-**501**.

DeVilbiss Type P-GD Pressure Feed Spray Guns

Sprays light or heavy materials. Fan spray, 6 inches wide. Operates from ¼-hp. air compressor. Max. pressure, 50 lb. Has ¼-inch N.P.S. for air connection and 9/16-inch—20 for fluid connection. Cup holds 1 quart.

Shipping weight, 2½ lb.

Type P-GD-**505**, Non-Bleeder Type, for Air Compressors with Unloading Mechanism or in Air Lines with Press. Reg..... each **$16.20**

Type P-GD-**502**, Bleeder Type (No Air Valve) for Small Air Compressors, No Unloading Mechanism or in Air Lines without Pressure Reg..... each **$16.20**

Extra Air Caps

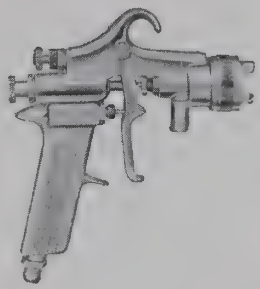
Type GC-**16**, for Round Spray .... each **$1.35**

Type GC-**406**, Produces Fan Spray at 45° Angle for Floor and Ceiling Spraying .... each **4.25**

No. P-GD-602 Adapters

For P-GD guns, to convert for use with fluid hose; 9/16-inch—20 female x ⅜-inch N.P.S. male thread..ea. **$.75**

Type P-MBC-510 DeVilbiss Spray Guns



For automobile, furniture or equipment refinishing, interior decorating, exterior painting and product finishing. May be used for heavy industrial painting or delicate touch-up. Removable spray head saves time in changing materials, spraying conditions and in cleaning gun.

Ball and cone principle of nozzle parts assembly; air tight seating between air cap and fluid tip.

Graduated spray width adjustment from round to extreme fan. Cartridge type fluid needle adjustment assembly may be quickly removed and replaced as a unit. Fluid adjustment conveniently located for quick, easy control of fluid flow.

Large air passage affords better atomization at lower air pressure. Gun can be held in all practical spraying positions without fatigue because of design of trigger.

With proper nozzle combinations, gun may be used with suction or pressure material feed.

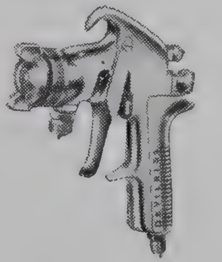
Spray heads recommended for auto refinishing: No. 36 air cap, EX fluid tip for lacquers where air pressure is 45 to 55 pounds and compressor size is 1½ to 2 hp.; No. 30 air cap, EX fluid tip for synthetic enamel, wrinkles, heavy body materials and primer surfaces where air pressure is 55 to 75 pounds, and compressor size is 2 to 3 hp. Specify type of head desired.

Has ¼-inch N.P.S. for air connection and ⅜-inch N.P.S. for fluid connection.

Type P-MBC–**510**, Ship. Weight, 2½ Lb. .... each **$41.50**

If 9/16″–20 for air and 9/16″–20 for fluid connections are desired, remove prefix P from No. when ordering.

Type P-JGA-502 DeVilbiss Large Capacity Spray Guns



Straight, heavily knurled knobs at back of gun, easily turned, control spray from round to full fan and adjust amount of material sprayed.

Gun balances on line with trigger which has comfortable grip and easy two-finger pull. Trigger of durable steel stamping reinforced at wear points.

Forged aluminum alloy body. Highly polished finish. Short, large diameter fluid passages easily flushed.

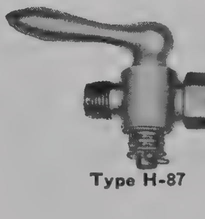
Plastic air seal valve assures positive seating and is self-adjusting for wear. Large size packing nut for sealing of packing. Removable nipples of wear-resisting metal.

Has ¼-inch N.P.S. air inlet and ⅜-inch N.P.S. fluid inlet.

Type P-JGA-**502**, with selection of Air Cap and Fluid Tip. Net Wt., 1⅜ Lb.; Ship. Wt. 2¼ Lb. .... each **$33.50**

If 9/16″-20 for air and 9/16″–20 for fluid connections are desired, remove prefix P from No. when ordering.

DeVilbiss Spray Painting Air Valves


Type H-87

Type H-87

Has ¼-inch pipe male one end, 9/16-inch-20 male other end.

Type H-**87** .... each **$1.60**

Type P-H-362

Has ⅜-inch pipe female one end, ⅜-inch male other end.

Type P-H-**362** .... each **$1.90**

Type C DeVilbiss Suction Feed Cup Attachments

For use with Type EGA, TGA or CM spray guns.

Equipped with a tight fitting, gasketed screw type cover. Cup is heavy glass. Attachment is available only with $\frac{9}{16}$"–20 threads.

If used with any P prefix spray guns, other than Type P-EGA, No. H-4110 adapter is required.

No.	C-535	C-536	C-537	C-538	C-539
Each	$3.25	3.25	3.60	4.00	3.60
Capacity.......ounces	2	4	6	6	16
Material	Glass	Glass	Glass	Metal	Glass
Ship. Wt.......pounds	1	1	1	$\frac{3}{4}$	$1\frac{1}{4}$

Type P-KS-525 DeVilbiss Suction Feed Cup Attachments

Capacity, 24 Ounces

Designed for use with Types P-CM and P-TGA Spray Guns.

Cup is pressed in one piece. The rubber gasket cemented to the lid of the cup forms an airtight joint and prevents leakage.

Thumb pressure on the lever releases the clamp and a slight turn detaches the cup.

Extra cups with airtight plain covers are available.

Has $\frac{3}{8}$-inch N.P.S. for fluid connection.

Shipping weight, 1 pound.

Type P-KS-**525**..............................each **$7.00**

If $\frac{9}{16}$"-20 for fluid connection is desired, remove prefix P from No. when ordering.

Type P-KR-550 DeVilbiss Suction Feed Cup Attachments

Capacity, 1 Quart

For use with all DeVilbiss suction feed spray guns. For all types of refinishing and automotive shops.

Made of aluminum and reinforced at wear points with steel.

Steel base ring protects cup.

Features include: unbreakable pressed steel yoke; clamp seals lid to cup when closed—prys lid off when released; thick soft gasket nested flush in lid forms perfect seal, cleans easily; large diameter mouth and seamless construction.

Has $\frac{3}{8}$-inch N.P.S. for fluid connection.

Type P-KR-**550**. Shipping Weight, $1\frac{1}{2}$ Pounds...each **$7.50**

If $\frac{9}{16}$"-20 for fluid connection is desired, remove prefix P from No. when ordering.

Type P-KR-552 DeVilbiss Suction Feed Cup Attachments

1-Pint Capacity

Recommended when only small quantities of material are to be used.

Fits all Type P-JGA, P-MBC and P-CM spray guns.

Seamless, one-piece cup has straight, smooth sides. Air-tight joint between cup and lid prevents leakage. Quick detachable clamping arrangement.

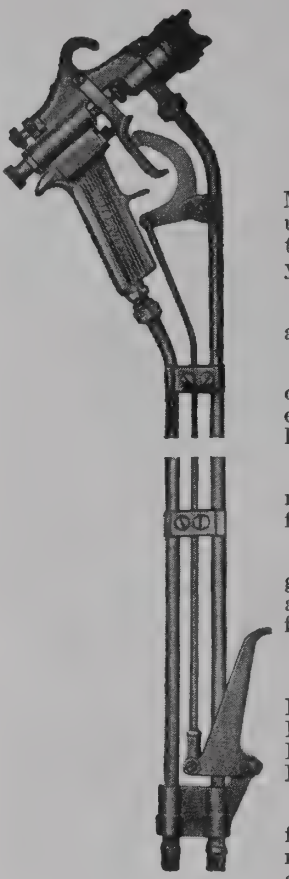
Has $\frac{3}{8}$-inch I.P.S. for fluid connection.

Extra cups only or with plain cover and gasket are available.

Shipping weight, $1\frac{1}{8}$ pounds.

Type P-KR-**552**..............................each **$6.75**

If $\frac{9}{16}$"-20 for fluid connection is desired, remove prefix P from No.



DeVilbiss Type P-MBE Spray Gun Extension Handles

For Use with Type P-MBC Spray Guns

Adapts the standard Type P-MBC spray guns to extension use, for painting ceilings, walls, truss work and similar work beyond ordinary reach.

Tilts nozzle of spray gun at 40° above horizontal.

Extension operates gun without impairing its speed or efficiency. Trigger is located for easy handling.

Has $\frac{1}{4}$-inch N.P.S. for air connection and $\frac{3}{8}$-inch N.P.S. for fluid connection.

Price does not include spray gun. The 8 and 10-foot lengths are provided with a special reinforcing bar.

Type No.	Each	Lgth. Feet	Ship. Wt. Lb.
P-MBE-**544**	**$41.00**	4	6
P-MBE-**546**	**46.50**	6	9
P-MBE-**548**	**52.00**	8	12
P-MBE-**550**	**57.00**	10	14

If $\frac{9}{16}$"-20 for air and $\frac{5}{8}$"-18 for fluid connections are desired, remove prefix P from No. when ordering.

Type KN-519 DeVilbiss Pressure Feed Cups

Recommended for pressure feed operations which require only small quantities of material, and where it is desired to get decorative effects like stipples, spatters, blends, and plastics.

Particularly designed for heavy and viscous materials, such as the heavier wall paints, plastic paints, veiling materials, etc. Quart size.

Attaches directly to Type MBC Spray Guns.

Cup has air adjusting valve, release and safety valve, fluid pressure regulator, and is supplied either with or without gauge.

Shipping weight, 2 pounds, 4 ounces.

Type KN-**519**..............................each **$24.00**

DeVilbiss Suction Feed Cups

With Plain Cover and Gasket

Type	Each	Used with	Capacity	Material	Ship. Wt., Oz.
C-**630**	**$.40**	C Cup	2 Ounces	Glass	12
C-**631**	**.40**	C Cup	4 Ounces	Glass	12
C-**625**	**.50**	C Cup	6 Ounces	Glass	12
C-**628**	**.50**	C Cup	16 Ounces	Glass	20
GCS-**607**	**1.80**	GDS Gun	1 Quart	Metal	12
GCS-**607**	**1.80**	GD Gun	1 Quart	Metal	12
KR-**606**	**2.90**	KR Cup	1 Pint	Metal	10
KR-**605**	**3.85**	KR Cup	1 Quart	Metal	16
KS-**602**	**3.40**	KS Cup	24 Ounces	Metal	14
		Cup Only			
CMD-**412**	**$8.70**	CMD Gun	2 Quarts	Metal	40
KR-**406**	**1.80**	KR Cup	1 Pint	Metal	10
KR-**417**	**2.75**	KR Cup	1 Quart	Metal	18
KS-**407**	**2.50**	KS Cup	24 Ounces	Metal	14

DeVilbiss Pressure Feed Paint Tanks

Conveys large quantities of paint or finishing materials to the spray gun under constant and accurate control.

1—One-piece full drawn shell. Tank made to A.S.M.E. specifications (except QN, 2 gallon). Protective coating inside and out.

2—Pressed steel lid held in place by sturdy lugs.

3—Fluid tube with strainer.

4—Concave bottom easy to clean.

5—Steel band welded to bottom of tank gives solid support.

6—Equipped with pressure regulator and gauge (except QN-5002 and QM-538 types) safety valve and relief valve.

7—One air and one fluid outlet valve on 2, 5, 10 and 15-gallon sizes; two of each on 30 and 60-gallon sizes. Has ¼-inch N.P.S. for air connection and ⅜-inch, N.P.S. for fluid connection.

8—All sizes up to and including 15 gallons have handles.

9—Tanks may be equipped with hand operated or air motor driven agitators.

10—Insert containers for ease in changing material.

	Tank — Without Agitator or Insert Container			Insert Containers — Container Cover Only		Container Only		
Cap. Gal.	Type	Each	Wt., Lb.	Type	Each	Type	Each	Wt. Lb.
2	P-QM-5502	$84.00	40	QM- 489	$1.50	QM- 482	$4.70	4
2	P-QN-5003	38.50	14	QM- 489	1.50	QM- 482	4.70	..
‡2	P-QN-5002	27.75	14	QM- 489	1.50	QM- 482	4.70	..
5	P-QM-5092	11.50	85	QM-4014	2.20	QM- 439	8.10	9
‡5	P-QM- 538	100.50	80	QM-4014	2.20	QM- 439	8.10	9
10	P-QM-5094	132.50	95	QM-4014	2.20	QM- 433	9.00	10
15	P-QM-5096	164.50	112	QM-4014	2.20	QM-4003	11.20	13
30	P-QM-5036	229.00	215	....	....	QM-4031	35.00	..
*60	P-QM-5164	265.50	335	....	....	QM-4261	54.00	..
†60	P-QM-5260	265.50	335	....	....	....	.....	..

*Top outlet. †Bottom outlet. ‡Less Regulator.

If $\frac{9}{16}$″-20 for air and ⅝″-18 for fluid connections are desired, remove prefix P from No. when ordering.

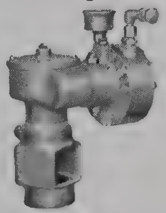
Hand Operated Agitators

For 5, 10, 15, 30 or 60-gallon Type QM tanks.

Type..	QM-4535	QM-4538	QM-4541	QM-4423	QM-4427
Each..	**$20.00**	23.50	28.50	46.00	51.00
Wt..lb.	10	10	12	20	50

Type P-QS-5001 Air Motor Drive

For Agitator



For 5, 10, 15, 30 or 60-Gallon Type QM pressure feed tanks. Air consumption, 5 to 8 cfm. at 50 rpm. 1 hp. or larger air compressor required depending on agitator speed.

Has ¼-inch N.P.S. for air connection.

Shipping weight, 21 pounds.

Type **P-QS-5001**..........................each **$80.00**

Type P-QS-5003 Air Motor Drive Unit

For paint drum agitator. For agitators built integral in paint drums. Specify thread size in flange or paint drum so that proper adapter between agitator shaft in drum and air motor drive can be included.

Air consumption, 5 to 8 cfm. at 50 rpm. 1 hp. or larger air compressor required depending on agitator speed.

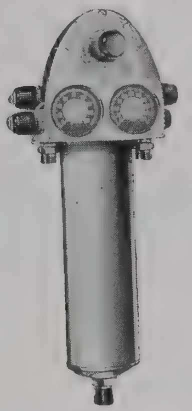
Has ¼-inch N.P.S. for air connection.

Shipping weight, 21 pounds.

Type **P-QS-5003**, Air Motor Drive Unit and Adapter ....each **$131.50**

If $\frac{9}{16}$″-20 for air connection is desired, remove prefix P from No. when ordering.

Type P-HLD-501 DeVilbiss Air Transformers



Regulates pressure, filters air, traps moisture and oil vapor and furnishes convenient outlet to which spray guns, dusters, etc. can be connected.

Capacity, 100 cfm.

Has conveniently located regulator knob and four built-in leakproof air outlet valves, two regulated and two non-regulated. Large condensing chamber, baffle unit and metal filter. Enclosed pressure gauges. Manual operated drain valve.

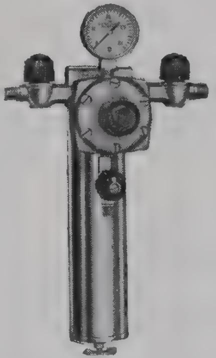
Has ¼-inch N.P.S. air outlets.

Shipping weight, 20 pounds.

Type **P-HLD-501**.........each **$60.00**

If $\frac{9}{16}$″-20 for air connection is desired, remove prefix P from No. when ordering.

Type P-HLE-501 DeVilbiss Air Transformers



For all types of work where compressed air must be cleaned and regulated.

For spray painting it has capacity to supply two of the largest production guns. Pilot regulator is built-in and controls air pressure applied to main regulator. Finger tip control and adjustment.

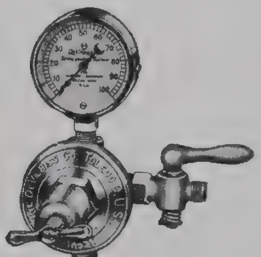
Equipped with gauge, three outlet valves (two for clean regulated air; one for clean air at main line pressure), drain valve, mounting bracket with screws.

Cap., 50 cubic ft. air per min. Main air inlet, ½-in. N.P.T. Air outlet connections, ¼-in. N.P.S. Max. regulated press., 135 psi.; max. unregulated press., 250 psi.

Type **P-HLE-501**, Ship. Wt., 9½ Lb...........each **$43.00**

DeVilbiss Type P-HQ Pressure Regulators

Capacity, 30 CFM. at 80 Pounds Pressure For One Type P-MBC or Two Smaller Spray Guns



Type HQ-504 Regulator

Will regulate up to 100 lb. press. at main line press. of 125 lb.

Has ⅜-inch male pipe inlet and ¼-inch female pipe openings for outlet and gauge.

Shipping weight, 4½ pounds.

Type **HQ-504**.........each **$14.50**

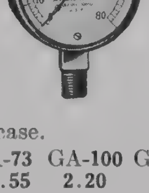
Type P-HQ-601 Regulator Assembly

Consists of Type HQ-504 regulator, 100-lb. gauge and Type P-H-87 air valve. Shipping weight, 4½ lb.

Type **P-HQ-601**......each **$18.30**

If $\frac{9}{16}$″-20 for air connection is desired, remove prefix P from No. when ordering.

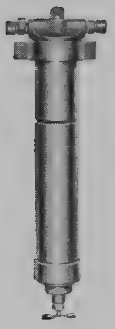
DeVilbiss Pressure Gauges



With painted black case.

Type............	GA-73	GA-100	GA-288	GA-211	GA-250
Each............	**$2.55**	2.20	2.55	2.55	2.55
Maximum Pressure..........lb.	30	100	160	200	300
Diameter.......in.	2½	2	2½	2½	2
Shipping Weight.......lb.	1	1	1	1	1

Type P-CC-506 DeVilbiss Light Duty Condensers



For use with small portable compressing outfits when operating under abnormal atmospheric conditions.

Removes moisture, oil or other foreign matter from the compressed air supply.

Furnished with wall bracket.

Passes 20 cubic feet of air per minute.

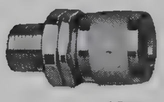
Has ¼-inch N.P.S. for air connection.

Shipping weight, 4 pounds.

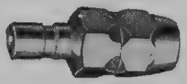
Type P-CC-**506**....................each **$10.20**

If 9/16″-20 for air connection is desired, remove prefix P from No. when ordering.

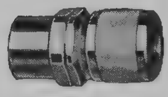
DeVilbiss Quick Detachable Air Hose Connections



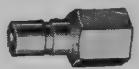
Threaded Male Connection Valve



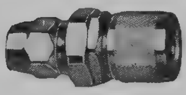
Hose Connector Stem



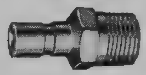
Threaded Female Connection Valve



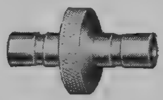
Threaded Female Connector Stem



Hose Connection Valve



Threaded Male Connector Stem



Double Connector

Use on air hose, air pipe lines and air operated tools.

All connection stems fit all bodies interchangeably. Valve in body stops air flow when connection stem is removed. Valve bodies swivel to prevent kinking of hose. Connection made by slipping the two members together. Disconnected by pressing large knurled ring. Installation requires standard wrenches.

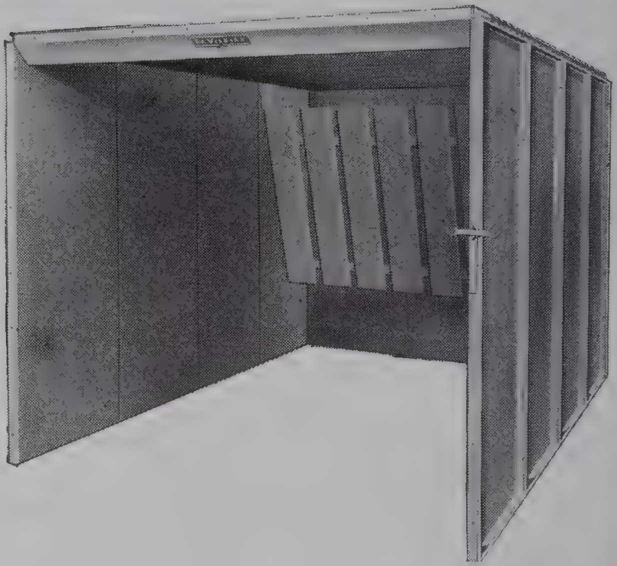
Hose Size —Inches—		Hose —Connection Valve—		Hose —Connector Stem—	
I.D.	O.D.	Type	Each	Type	Each
¼	31/64	HC-4508	$2.00	HC-4532	$.90
¼	⅝	HC-4509	2.00	HC-4533	.90
5/16	⅝	HC-4511	2.00	HC-4535	.90
⅜	11/16	HC-4512	2.00	HC-4536	.90
⅜	¾	HC-4513	2.00	HC-4537	.90

Thread Size	Style	Threaded —Connection Valve— Type	Each	Threaded —Connector Stems— Type	Each
¼″N.P.T.	Male	P-HC-**4100**	**$1.85**	P-HC-**201**	**$.50**
¼″N.P.T.	Female	P-HC-**4120**	**1.85**	P-HC-**196**	**.50**
⅜″N.P.T.	Male	P-HC-**4101**	**1.85**	P-HC-**236**	**.50**
⅜″N.P.T.	Female	P-HC-**4102**	**1.85**	P-HC-**235**	**.50**
¼″N.P.S.	Female	....	....	P-HC-**4416**	**.50**
9/16″-20	Female	....	....	HC-**4416**	**.50**

No. HC-**341**, Double Connector with Quick Detachable Stem, Both Ends............................each **$.80**

DeVilbiss Floor Type Spray Booths

Direct Type Exhaust With Distributing Plates



Engineered with exhaust efficiency for operating conditions in all types of industries. Completely and effectively exhausts the finishing area.

Constructed with distributing plate assembly for great efficiency through more uniform air distribution.

Panels made in sizes for convenient handling so no more than two men are required to erect any booth regardless of size.

Booth walls correctly aligned by floor channel which anchors with only two bolts. No brackets or angle irons required.

Booths have 4-inch fire curtain across top front.

Meet requirements of Fire Insurance Underwriters.

Constructed of 18-gage sheet steel panels which have rigid rolled edges and welded, mitered corners.

Each booth shipped with necessary nuts, bolts, fittings, etc. and instruction sheet for easy, quick erection.

			Booth Facial Velocity —Lineal FPM.—				
Model No. Top Outlet or Back Outlet	Each	Fan Hp.	*With Exhaust Pipe	†With Exhaust Pipe and 1 Elbow	‡Inside Dimen. Feet W.D.H.	§Work. Depth Feet	Ship. Wt. Lb.
DTH-504	**$131.50**	¾	180	155	4x 6 x7	4	660
DTH-506	**158.00**	1	140	125	6x 7 x7	5	955
DTH-508	**203.50**	1½	120	110	8x 8⅜x7	6⅜	1230
DTH-510	**252.00**	2	115	110	10x10 x7	8	1545
DTJ-512	**429.00**	1½	135	125	12x12 x8	10	1935

Nos. DTH-504 and DTH-506 take one reflector and Nos. DTH-508 through DTJ-512 take two reflectors, Nos. LK-502 or LF-501.

*10-foot straight exhaust pipe.

†25-foot straight exhaust pipe.

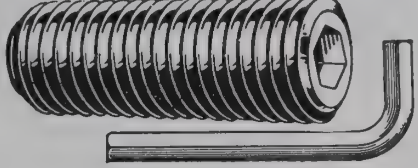
‡To obtain overall dimensions, add 4 inches to width and 2 inches to depth and height.

§Top or back outlet. Side outlet booth is 6 inches less.

Parker-Kalon Socket Set-Screws

Cold Forged—Ground Threads

Cup Point



Socket screws can also be furnished to order made of brass, Everdur, bronze, duralumin, stainless steel, monel metal, etc. Prices on application.

Can be furnished in special finishes such as nickel-plated, brass-plated, copper-plated, cadmium-plated, bronze-plated, etc., prices on application.

All sizes furnished as standard in the American National Coarse Thread (N.C.) series; also Fine Thread (N.F.) series as listed; with cup point. Class 3 tolerance.

Screws differing in diameter, length, thread, point, etc., from those shown to be standard can be furnished to order. Prices upon receipt of specifications.

One Key Furnished with Each Standard Package

Per 100

National Coarse Thread

Diameter Screw....in.	No. 4	No. 5	No. 6	No. 8	No. 10	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
Decimal Equiv.....in.	.112	.125	.138	.164	.190	.250	.3125	.375	.4375	.500	.625	.750	.875	1.000
N.C. Thrds.....per in.	40	40	32	32	24	20	18	16	14	13	11	10	9	8
Size Hex. Hole.....in.	.050	1/16	1/16	5/64	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	1/2	9/16
Length Overall, Inches 1/8	$3.20	$3.25	$3.30	*$3.35	....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3/16	3.25	3.30	3.35	3.40	$3.45	*$3.50	.....	.....	.....	.....	.....	.....	.....	.....
1/4	3.30	3.35	3.40	3.45	3.50	3.55	*$3.60	*$3.65	.....	.....	.....	.....	.....	.....
5/16	3.35	3.40	3.45	3.50	3.55	3.60	3.65	*3.70	.....	.....	.....	.....	.....	.....
3/8	3.45	3.50	3.55	3.60	3.65	3.70	3.75	3.80	*$5.00	*$6.00	.....	.....	.....	.....
7/16	3.65	3.70	3.75	3.80	3.85	3.90	3.95	4.00	5.20	*6.20	.....	.....	.....	.....
1/2	3.85	3.90	3.95	4.00	4.05	4.10	4.15	4.25	5.40	6.60	*$9.20	.....	.....	.....
5/8	4.15	4.20	4.25	4.30	4.35	4.40	4.45	4.55	5.80	7.00	9.60	†$12.80	.....	.....
3/4	....	4.60	4.65	4.70	4.75	4.80	4.95	5.10	6.40	7.60	10.00	*13.20	.....	.....
7/8	....	....	5.15	5.20	5.30	5.40	5.60	5.80	7.15	8.40	10.85	*14.10	*$19.50	.....
1	....	....	5.75	5.80	5.90	6.00	6.25	6.50	7.90	9.20	11.70	*15.00	*20.50	$24.50
1 1/4	....	....	....	....	7.10	7.20	7.55	7.90	9.40	10.80	13.40	*16.80	*23.00	*27.00
1 1/2	....	....	....	....	....	8.40	8.85	9.30	10.90	12.40	15.10	*18.60	*25.50	*30.00
1 3/4	....	....	....	....	....	9.60	10.15	10.70	12.40	14.00	16.80	*21.00	*29.00	*34.50
2	....	....	....	....	....	10.80	11.50	12.10	13.90	15.60	18.50	*23.40	*34.00	*40.50
2 1/2	....	....	....	....	....	.....	.....	14.20	16.15	18.00	21.05	*28.20	*40.00	*47.50
3	....	....	....	....	....	.....	.....	.....	.....	20.40	23.60	*33.00	*46.50	*55.00
Standard Pkg.........					100					50		25		

Per 100

National Fine Thread

Diameter Screw..........inches	No. 4	No. 5	No. 6	No. 8	No. 24	1/4	5/16	3/8	7/16	1/2	5/8
Decimal Equivalent......inches	.112	.125	.138	.164	1.90	.250	.3125	.375	.4375	.500	.625
N.F. Threads per Inch.........	48	44	40	36	32	28	24	24	20	20	18
Size Hex. Hole..........inches	.050	1/16	1/16	5/64	3/32	1/8	5/32	3/16	7/32	1/4	5/16
Length Overall, Inches 1/8	$3.20	$3.25	$3.30	*$3.35	....	....	....	....	....	....	.....
3/16	3.25	3.30	3.35	3.40	$3.45	*$3.50	....	....	....	....	.....
1/4	3.30	3.35	3.40	3.45	3.50	3.55	*$3.60	*$3.65	....	....	.....
5/16	3.35	....	3.45	3.50	3.55	3.60	3.65	*3.70	....	....	.....
3/8	3.45	....	3.55	3.60	3.65	3.70	3.75	3.80	*$5.00	....	.....
7/16	....	....	....	....	3.85	3.90	3.95	4.00	5.20	....	.....
1/2	....	....	....	4.00	4.05	4.10	4.15	4.25	5.40	$6.60	.....
5/8	....	....	....	....	4.35	4.40	4.45	4.55	....	7.00	$9.60
3/4	....	....	....	....	4.75	4.80	4.95	5.10	....	7.60	.....
7/8	....	....	....	....	....	....	....	....	....	....	.....
1	....	....	....	....	5.90	6.00	6.25	6.50	....	9.20	11.70
1 1/4	....	....	....	....	7.10	7.20	7.55	7.90	....	....	.....
1 1/2	....	....	....	....	....	....	....	9.30	....	....	.....
Standard Pkg................						100					50

*Available in cut thread only.

Extras

Diam. Screw.............inches	No. 4	No. 5	No. 6	No. 8	No. 10	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
Extra Keys:														
Short Arm.............per 100	$2.50	$2.50	$2.50	$2.55	$2.60	$2.65	$3.65	$4.50	$5.50	$6.50	$11.00	$18.00	$36.00	$56.00
Long Arm..............per 100	....	....	....	3.60	4.00	4.40	5.50	6.80	8.40	9.60	16.50	27.00	54.00	84.00

Diameters and lengths where prices are not shown are made to order only. Prices on application.

Parker-Kalon Size-Marked Gear Grip Socket Head Cap-Screws

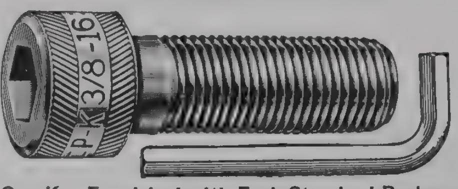
Cold Forged

Class 3 Fit

Can be furnished in plated finishes such as brass, copper, bronze and cadmium. Prices will be furnished upon application.

Screws under No. 10 diameter are not size-marked.

All sizes furnished as standard in American National (N.C.) thread.



One Key Furnished with Each Standard Package

Also furnished as shown in American National Fine (N.F.) thread in sizes shown.

Screw differing in diameter, length, thread, point, etc., from those shown can be furnished to order. Prices upon receipt of specifications.

Per 100

National Coarse Thread

Diam. Screw . . in.	No. 4	No. 5	No. 6	No. 8	No. 10	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1	*†1¼	*†1½
Decimal Equiv. in.	.112	.125	.138	.164	.190	.250	.3125	.375	.4375	.500	.625	.750	.875	1.000	1.250	1.500
N. C. Thrds. per inch	40	40	32	32	24	20	18	16	14	13	11	10	9	8	7	6
Max. Head Diam. . in.	.183	.205	.226	.270	5/16	⅜	7/16	9/16	⅝	¾	⅞	1	1⅛	1 5/16	1¾	2
Max. Head Ht. . . in.	.112	.125	.138	.164	.190	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1	1¼	1½
Size of Hex. Hole. in.	5/64	3/32	3/32	⅛	5/32	3/16	7/32	5/16	5/16	⅜	½	9/16	9/16	⅝	‡⅞	‡1
Length Under Head, Inches																
¼	$4.00	$4.05	$4.10	$4.15	....	....	....	....	....	....	....	....	....	....	....	....
⅜	4.10	4.15	4.20	4.25	$4.35	$4.55	$5.40	....	....	....	....	....	....	....	....	....
½	4.25	4.30	4.35	4.40	4.50	4.70	5.60	$6.40	$8.40	$9.25	....	....	....	....	....	....
⅝	4.45	4.50	4.55	4.60	4.70	4.90	5.80	6.70	8.80	9.90	....	....	....	....	....	....
¾	4.70	4.75	4.80	4.90	5.00	5.20	6.05	7.00	9.25	10.55	....	....	....	....	....	....
⅞	....	....	5.20	5.30	5.40	5.60	6.40	7.35	9.70	11.20	....	....	....	....	....	....
1	....	....	5.65	5.75	5.85	6.05	6.85	7.80	10.15	11.85	$17.50	....	....	....	....	....
1¼	....	....	....	6.25	6.35	6.55	7.40	8.60	11.00	13.10	19.50	$25.50	....	....	....	....
1½	....	....	....	6.90	7.00	7.20	8.00	9.45	11.85	14.35	21.50	28.00	....	....	....	....
1¾	....	....	....	....	7.65	7.85	8.70	10.30	13.05	15.60	23.50	30.50	....	....	....	....
2	....	....	....	....	8.40	8.65	9.50	11.20	14.30	16.85	25.50	33.00	$54.00	$62.00	....	....
2¼	....	....	....	....	....	9.45	10.30	12.25	15.60	18.15	27.50	35.50	58.00	67.00	....	....
2½	....	....	....	....	....	10.30	11.40	13.50	16.90	19.45	29.50	38.00	62.50	72.00	$3.00	....
2¾	....	....	....	....	....	11.40	12.70	14.80	18.20	20.75	31.50	41.00	67.00	77.50	....	....
3	....	....	....	....	....	12.70	14.00	16.10	19.50	22.05	33.50	44.00	71.50	83.00	3.10	$4.10
3¼	....	....	....	....	....	....	15.30	17.75	21.15	23.70	35.50	47.00	76.00	88.50	....	....
3½	....	....	....	....	....	....	16.90	19.40	22.80	25.35	37.50	50.00	80.50	94.00	3.20	4.30
4	....	....	....	....	....	....	....	22.80	26.15	28.70	41.50	55.50	89.00	106.50	3.30	4.50
4½	....	....	....	....	....	....	....	26.50	....	32.05	45.50	61.00	98.00	119.00	3.50	4.80
5	....	....	....	....	....	....	....	32.00	....	35.40	50.00	66.50	107.00	131.50	3.70	5.10
5½	....	....	....	....	....	....	....	....	....	38.80	54.50	72.00	116.00	144.00	3.90	5.40
6	....	....	....	....	....	....	....	....	....	42.25	59.00	77.50	125.00	156.50	4.20	5.70
6½	....	....	....	....	....	....	....	....	....	49.00	68.00	88.50	143.00	178.00	4.50	6.10
7	....	....	....	....	....	....	....	....	....	56.00	76.00	100.00	161.00	200.00	4.80	6.50
8	....	....	....	....	....	....	....	....	....	70.00	93.00	125.00	195.00	245.00	5.40	7.20
9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6.20	8.20
10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7.00	9.50
12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8.60	12.10
Standard Pkg.	100							50			25				1	

*Price per screw. †Smooth head is standard. ‡No keys furnished.

Per 100

National Fine Thread

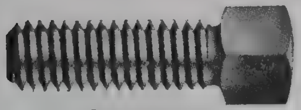
Diam. Screw . . . in.	No. 4	No. 5	No. 6	No. 8	No. 10	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1
Dec. Equiv. . . . . in.	.112	.125	.138	.164	.190	.250	.3125	.375	.4375	.500	.625	.750	.875	1.000
N. F. Thrds. per inch	48	44	40	36	32	28	24	24	20	20	18	16	14	14
Max. Head Diam. . in.	.183	.205	.226	.270	5/16	⅜	7/16	9/16	⅝	¾	⅞	1	1⅛	1 5/16
Max. Head Ht. . in.	.112	.125	.138	.164	.190	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1
Size of Hex. Hole. in.	5/64	3/32	3/32	⅛	5/32	3/16	7/32	5/16	5/16	⅜	½	9/16	9/16	⅝
Length Under Head, Inches														
¼	....	....	$4.10	....	....	....	....	....	....	....	....	....	....	....
⅜	....	....	4.20	$4.25	$4.35	$4.55	....	....	....	....	....	....	....	....
½	....	....	4.35	4.40	4.50	4.70	$5.60	$6.40	....	....	....	....	....	....
⅝	....	....	4.55	....	4.70	4.90	5.80	6.70	....	....	....	....	....	....
¾	....	....	4.80	4.90	5.00	5.20	6.05	7.00	....	....	....	....	....	....
⅞	....	....	....	....	5.40	5.60	6.40	7.35	....	....	....	....	....	....
1	....	....	....	....	5.85	6.05	6.85	7.80	$10.15	$11.85	$17.50	....	....	....
1¼	....	....	....	....	6.35	6.55	7.40	8.60	11.00	13.10	19.50	....	....	....
1½	....	....	....	....	7.00	7.20	8.00	9.45	11.85	14.35	21.50	....	....	....
1¾	....	....	....	....	7.65	7.85	8.70	10.30	....	15.60	23.50	....	....	....
2	....	....	....	....	8.40	8.65	9.50	11.20	14.30	16.85	25.50	....	....	....
2¼	....	....	....	....	....	9.45	10.30	12.25	....	18.15	....	....	....	....
2½	....	....	....	....	....	....	11.40	13.50	....	19.45	29.50	....	....	....
2¾	....	....	....	....	....	....	....	....	....	....	....	....	....	....
3	....	....	....	....	....	....	....	16.10	....	22.05	....	....	....	....
Standard Pkg.	100							50			25			

Extras

Diam. Screw . . . in.	No. 4	No. 5	No. 6	No. 8	No. 10	¼	5/16	⅜	7/16	½	⅝	¾	⅞	1	1¼	1½
Extra Keys:																
Short Arm. per 100	$2.55	$2.60	$2.60	$2.65	$3.65	$4.50	$5.50	$11.00	$11.00	$18.00	$36.00	$56.00	$56.00	$88.00	$120.00	$260.00
Long Arm. per 100	3.60	4.00	4.00	4.40	5.50	6.80	8.40	16.50	16.50	27.00	54.00	84.00	84.00	130.00	180.00	350.00
Size Hex. Hole . . in.	5/64	3/32	3/32	⅛	5/32	3/16	7/32	5/16	5/16	⅜	½	9/16	9/16	⅝	..	..

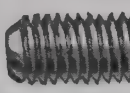
Diameters and lengths where prices are not shown are made to order only. Prices on application.

Steel Square Head and Headless Set-Screws


Square Head

Cup point square head and headless screws, National Coarse (U.S.S.) threads, hardened, are standard. Points of other shapes are specially made to order; price based on quantity. **When ordering,** state diameter first. In bulk or packages. **Heavy face** items are standard; others are special.

Cup Point


Headless

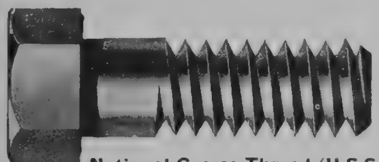
Diam. Screw...in.	No. 6	No. 8	No. 10	No. 10	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
Height Head...in.	....	....	....	....	3/16	15/64	9/32	21/64	3/8	15/32	9/16	21/32	3/4
Threads per in...	32	32	24	32	20	18	16	14	13	11	10	9	8
1/8	*$5.60	*$5.60	*$5.60	*$5.60	.....	.....	.....	.....	.....	.....	.....	.....	.....
3/16	*5.60	*5.60	*5.60	*5.60	*$5.60	.....	.....	.....	.....	.....	.....	.....	.....
1/4	*5.60	*5.60	*5.60	*5.60	‡5.60	*$6.30	.....	.....	.....	.....	.....	.....	.....
5/16	*5.60	*5.60	*5.60	*5.60	*5.60	*6.30	*$7.30	.....	.....	.....	.....	.....	.....
3/8	*5.60	*5.60	*5.60	*5.60	‡5.60	6.30	7.30	.....	.....	.....	.....	.....	.....
1/2	.....	*5.60	*5.60	*5.60	‡5.60	6.30	7.30	†$10.70	$13.10	.....	.....	.....	.....
5/8	.....	.....	.....	.....	‡5.70	6.40	7.40	‡10.70	†13.10	.....	.....	.....	.....
3/4	.....	.....	.....	.....	5.80	6.50	†7.50	†10.90	13.30	†$23.10	.....	.....	.....
7/8	.....	.....	.....	.....	6.20	6.80	†8.00	†11.10	†13.50	†23.50	.....	.....	.....
1	.....	.....	.....	.....	6.50	7.10	8.60	†11.30	13.70	†23.90	†$42.20	.....	.....
1 1/4	.....	.....	.....	.....	7.20	7.80	†9.60	†12.30	15.20	†24.30	†43.00	†$71.40	.....
1 1/2	.....	.....	.....	.....	7.90	8.40	†10.50	†13.30	16.70	†24.70	†43.80	†72.40	†$95.00
1 3/4	.....	.....	.....	.....	†8.50	*9.40	†11.80	†14.50	†18.20	†26.60	†44.60	†73.40	†96.20
2	.....	.....	.....	.....	†9.10	†10.40	†13.10	†15.80	†19.60	†28.40	†45.40	†74.40	†97.40
2 1/4	.....	.....	.....	.....	†9.60	†11.30	†14.30	†17.30	†21.20	†30.60	†48.80	†79.60	†103.00
2 1/2	.....	.....	.....	.....	†10.20	†12.30	†15.50	†18.90	†22.80	†33.00	†52.20	†84.60	†106.70
2 3/4	.....	.....	.....	.....	†10.70	†13.20	†16.80	†20.30	†24.30	†35.30	†55.60	†89.60	†114.40
3	.....	.....	.....	.....	†11.30	†14.20	†18.00	†21.80	†24.70	†37.70	†58.70	†94.80	†117.70
3 1/4	.....	.....	.....	.....	.....	.....	†20.60	†23.40	†28.30	†40.80	†62.60	†100.00	†126.50
3 1/2	.....	.....	.....	.....	.....	.....	†23.20	†24.90	†30.70	†43.80	†66.40	†105.40	†133.30
3 3/4	.....	.....	.....	.....	.....	.....	†25.80	†26.50	†33.20	†46.60	†70.40	†111.20	†139.50
4	.....	.....	.....	.....	.....	.....	†28.40	†28.00	†35.70	†49.70	†72.20	†116.50	†146.40
4 1/2	.....	.....	.....	.....	.....	.....	.....	.....	†43.70	†55.90	†83.70	†127.70	†164.30
5	.....	.....	.....	.....	.....	.....	.....	.....	*51.70	†68.70	†96.70	†139.20	†181.70
6	.....	.....	.....	.....	.....	.....	.....	.....	†67.70	†94.30	†128.70	†190.40	†252.10
§Add for ea. 1/4 In.	.....	.....	.....	.....	1.40	1.80	2.60	3.20	4.00	6.40	8.00	12.80	17.60
Qty. per Pkg....	200				100		50			25			20

(Length, Inches)

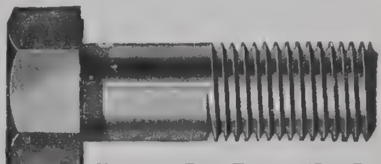
*In headless set-screw only. †In square head set-screw only. ‡Square nead package quantity, 100.

§Add for each 1/4 inch the above extras for lengths not exceeding 6 inches; square head screws on y.

Steel Hexagon Head Cap-Screws


National Coarse Thread (U.S.S.)

Packed in bulk or packages.
When ordering, specify diameter first and finish desired. Available bright or heat treated.


National Fine Thread (S.A.E.)

Per 100

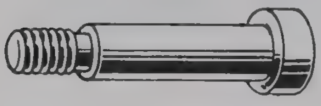
Diameter of Screw...inches	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Diameter of Head...inches	7/16	1/2	9/16	5/8	3/4	13/16	15/16	1 1/8	1 5/16	1 1/2
Height of Head...inches	5/32	13/64	15/64	9/32	5/16	23/64	25/64	15/32	35/64	39/64
Threads per Inch, National Coarse (U.S.S.)...	20	18	16	14	13	12	11	10	9	8
Threads per Inch, National Fine (S.A.E.)...	28	24	24	20	20	18	18	16	14	14
Thread Length, N.C. and N.F...inches	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 3/4	2	2 1/4
1/2	$2.60	$3.00	$3.80	....	....	.....	.....	.....	.....	.....
5/8	2.70	3.20	4.00	....	....	.....	.....	.....	.....	.....
3/4	2.80	3.40	4.20	$6.00	$9.40	.....	.....	.....	.....	.....
7/8	3.00	3.60	4.40	6.20	9.80	.....	.....	.....	.....	.....
1	3.20	3.80	4.60	6.40	10.20	$15.80	$17.20	$26.60	.....	.....
1 1/4	3.60	4.20	5.00	7.00	11.00	16.80	18.40	26.60	.....	.....
1 1/2	4.00	4.60	5.40	7.60	11.80	17.80	19.60	28.20	$49.20	$72.00
1 3/4	4.40	5.00	6.00	8.20	12.60	18.80	20.80	29.80	49.20	72.00
2	4.80	5.40	6.60	9.00	13.40	20.00	22.00	31.40	49.20	72.00
2 1/4	5.20	5.80	7.20	9.80	14.40	21.20	23.20	33.00	51.60	76.00
2 1/2	5.60	6.40	7.80	10.60	15.40	22.40	24.40	34.60	54.40	80.00
2 3/4	6.00	7.00	8.60	11.40	16.40	23.60	25.60	36.20	57.20	84.00
3	6.60	7.60	9.40	12.40	17.40	24.80	27.00	37.80	60.00	*88.00
3 1/4	8.00	9.20	10.60	13.40	18.40	26.00	28.40	39.60	63.00	*92.00
3 1/2	9.40	10.80	11.80	14.40	19.60	27.20	30.00	41.60	66.00	*98.00
3 3/4	10.80	12.40	13.60	15.80	20.80	28.60	31.60	43.60	70.00	*104.00
4	12.20	14.00	15.40	17.20	22.00	30.00	33.20	45.60	74.00	*110.00
4 1/2	15.00	17.20	19.00	21.20	26.80	35.00	37.20	51.00	82.00	*122.00
5	17.80	20.40	22.60	23.20	31.60	41.00	45.20	61.80	90.00	136.00
5 1/2	20.60	23.60	26.20	29.20	36.40	47.00	53.20	72.60	108.00	160.00
6	23.40	26.80	29.80	33.20	41.20	53.00	61.20	83.40	126.00	184.00
Add for Each 1/4 Inch for Lengths Longer than Listed...	1.40	1.60	1.80	2.00	2.40	3.00	4.00	5.40	9.00	12.00
Quantity per Package...	100	50				25		20		10

(Length under Head to Extreme Point, Inches)

The sizes listed above are considered standard. *Packed 20 in box.

Parker-Kalon Socket Head Shoulder Screws

American National Coarse Thread—Class 3 Tolerance

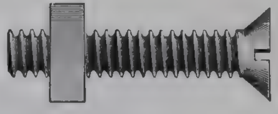


Made of Parkaloy steel. Brass, bronze, Everdur, etc.; plated finish; and diam. and lgth. where prices are not shown—prices on application. Packed 25 in standard package with one key in each.

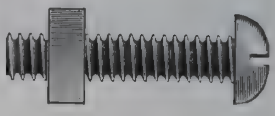
Per 100

	¼	5/16	⅜	½	⅝	¾
Shoulder Diam.in.	.2480	.3105	.3730	.4980	.6230	.7480
Dec. Equiv....in.	.2460	.3085	.3710	.4960	.6210	.7460
Thread Diam.....	10–24	¼–20	5/16–18	⅜–16	½–13	⅝–11
Thread Lgth...in.	⅜	7/16	½	⅝	¾	⅞
Head Diam....in.	⅜	7/16	9/16	¾	⅞	1
Head Height...in.	3/16	7/32	¼	5/16	⅜	½
Hex. Hole.....in.	⅛	5/32	3/16	¼	5/16	⅜
Shoulder Length, Inches						
⅜	$15.00	$16.70	$18.90	.....	.....	.....
½	15.40	17.10	19.30	$30.30	.....	.....
⅝	15.80	17.50	19.70	30.70	.....	.....
¾	16.20	17.90	20.10	31.10	.....	.....
1	17.00	18.70	20.90	31.90	.....	.....
1¼	17.80	19.50	21.70	32.70	$48.00	.....
1½	18.60	20.30	22.50	33.50	49.00	$76.00
1¾	.....	21.20	23.40	34.40	50.50	78.50
2	.....	22.20	24.40	35.40	52.00	81.00
2¼	.....	.....	26.00	37.10	55.50	84.50
2½	.....	.....	27.60	38.80	59.00	88.00
2¾	.....	.....	29.20	40.50	62.50	91.50
3	.....	.....	30.80	42.20	66.00	95.00
3¼	.....	.....	33.60	45.00	71.00	101.00
3½	.....	.....	36.40	47.80	76.00	107.00
3¾	.....	.....	39.20	50.60	81.00	113.00
4	.....	.....	42.00	53.40	86.00	119.00
4¼	.....	.....	.....	57.80	92.00	126.00
4½	.....	.....	.....	62.20	98.00	133.00
4¾	.....	.....	.....	66.60	104.00	140.00
5	.....	.....	.....	71.60	110.00	147.00
5½	.....	.....	.....	.....	128.00	167.00
6	.....	.....	.....	.....	146.00	187.00
Extra Keys:						
Short......	2.65	3.65	4.50	6.50	11.00	18.00
Long......	4.40	5.50	6.80	9.60	16.50	27.00

Steel Stove Bolts



Flat Head



Round Head

Per 100

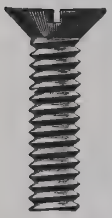
Length Inches	Diameter, Inches ⅛	5/32	3/16	¼	5/16	⅜	½
⅜	$1.72	$1.90	$2.00	....	....	....	.....
½	1.76	1.94	2.08	$3.10	....	....	.....
⅝	1.80	1.98	2.16	3.20	....	....	.....
¾	1.84	2.04	2.24	3.30	$5.20	$7.60	.....
⅞	1.90	2.12	2.32	3.40	5.40	7.80	.....
1	2.00	2.20	2.40	3.50	5.60	8.00	$18.60
1⅛	2.10	2.30	2.50	3.60	5.80	8.30	19.00
1¼	2.20	2.40	2.60	3.80	6.00	8.60	19.40
1⅜	2.30	2.50	2.70	3.90	6.20	8.90	20.00
1½	2.40	2.60	2.80	4.10	6.40	9.20	20.60
1¾	2.60	2.90	3.10	4.40	7.00	9.80	21.80
2	2.90	3.20	3.50	4.80	7.60	10.40	23.20
2¼	....	....	3.80	5.30	8.20	11.20	24.80
2½	....	....	4.20	5.80	8.80	12.00	26.40
2¾	....	....	4.50	6.30	9.40	12.80	28.00
3	....	....	4.90	6.80	10.00	13.60	29.80
3½	....	....	5.60	7.80	11.00	15.20	33.20
4	....	....	6.30	8.80	12.40	16.80	36.60
4½	....	....	....	9.70	13.80	.....	.....
5	....	....	....	10.70	15.20	.....	.....
5½	....	....	....	11.60	.....	.....	.....
6	....	....	....	12.60	.....	.....	.....
Add for Hex Nuts	.16	.20	.24	.30	.42	.60	1.40

The sizes as listed above are considered standard; all other sizes are non-standard, prices on request.

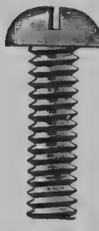
Machine Screws

Flat, Round, Fillister and Oval Heads

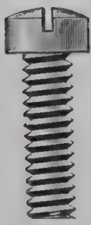
American Standard—Free Fit—Class 2



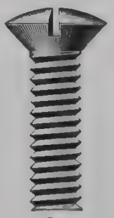
Flat Head



Round Head



Fillister Head



Oval Head

Steel Machine Screws—Per Gross

Diam. No.	2	3	4	5	6	8	10	10	12	¼″	5/16″	⅜″	½″
TypeThrd.	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Fine	Coarse	Coarse	Coarse	Coarse	Coarse
Thrds.perIn.	56	48	40	40	32	32	24	32	24	20	18	16	13
⅛	$.82	$.84	$.86	$.90	$.94	.....	.....	.....	.....	.....	.....	.....	......
3/16	.84	.86	.88	.92	.96	$1.20	$1.34	$1.34	.....	.....	.....	.....	......
¼	.86	.88	.90	.94	.98	*1.24	*1.38	*1.38	$1.66	.....	.....	.....	......
5/16	.88	.90	.92	.96	1.00	1.28	*1.42	*1.42	....	$2.20	.....	.....	......
⅜	.90	.92	.94	.98	1.02	1.32	1.46	1.46	*1.78	2.26	$3.40	.....	......
7/16	.92	.94	.96	....	1.04	1.36	1.50	1.50	....	*2.32	....	....	......
½	.94	.96	.98	1.02	1.08	1.40	1.54	1.54	1.90	2.40	*3.60	*$5.50	......
⅝	.98	1.02	1.04	1.08	1.14	1.48	1.64	1.64	2.04	2.56	3.90	5.90	......
¾	1.02	1.06	1.10	1.14	1.20	1.54	1.74	1.74	2.16	2.72	4.10	6.20	......
⅞	....	....	1.14	1.20	1.30	1.62	1.84	1.84	2.28	2.90	4.40	6.60	......
1	....	....	1.22	1.28	1.40	1.76	1.96	1.96	2.40	3.10	4.70	7.00	$14.40
1⅛	....	....	....	1.46	1.60	1.92	2.12	2.12	....	3.30	....	....	.....
1¼	....	....	1.60	1.64	1.80	2.08	2.30	2.30	2.80	3.50	5.30	7.80	15.80
1½	....	....	1.80	1.84	2.00	2.32	2.60	2.60	3.10	3.90	6.00	8.60	17.20
1¾	....	....	....	....	2.20	2.56	2.90	2.90	....	4.30	6.70	9.40	18.80
2	....	....	....	2.24	2.40	2.80	3.20	3.20	3.70	4.70	7.40	10.20	20.40
2¼	....	....	....	....	....	3.10	3.60	3.60	....	5.10	....	.....	.....
2½	....	....	....	....	....	3.40	4.00	4.00	....	5.60	8.80	12.40	24.20
2¾	....	....	....	....	....	....	4.40	4.40	....	6.20	....	.....	.....
3	....	....	....	....	....	4.00	4.80	4.80	....	6.80	10.40	15.00	.....

Brass Machine Screws—Per Gross

Diam. No.	2	3	4	5	6	8	10	10	12	¼″	5/16″	⅜″	½″
⅛	$.96	....	$1.14	$1.26	$1.40	....	....	....	....	....	.....	.....	.....
3/16	1.00	$1.08	*1.20	1.34	1.50	$2.20	....	....	....	....	.....	.....	.....
¼	1.04	1.14	1.26	1.42	1.60	*2.36	$2.96	$2.92	....	....	....	.....	.....
5/16	1.08	1.20	1.34	1.50	1.70	2.52	3.12	3.12	....	....	.....	.....	.....
⅜	1.14	1.26	1.42	1.60	1.80	2.68	3.30	3.30	*$4.40	*$6.20	$10.60	.....	.....
7/16	1.20	1.32	1.50	....	1.92	2.84	....	....	....	....	.....	.....	.....
½	1.26	1.38	1.58	1.80	2.04	3.00	3.70	3.70	5.00	7.00	11.80	$18.80	....
⅝	1.38	1.50	1.74	2.00	....	3.30	4.20	4.20	5.60	7.80	13.00	.....	.....
¾	1.50	1.64	1.90	2.20	....	3.60	4.60	4.60	6.00	8.20	14.20	22.00	.....
⅞	....	....	2.10	....	....	3.90	5.00	5.00	....	9.00	.....	.....	.....
1	....	....	2.30	2.60	....	4.20	5.50	5.50	7.20	9.80	16.60	25.40	$54.00
1¼	....	....	2.90	3.30	....	4.80	6.60	6.60	8.40	11.20	19.00	29.00	60.00
1½	....	....	....	....	....	5.60	7.50	7.50	9.40	12.60	21.20	32.20	66.00
1¾	....	....	....	....	....	6.40	8.40	8.40	.....	14.00	.....	.....	......
2	....	....	....	....	....	7.20	9.20	9.20	11.80	15.60	25.60	38.80	78.00
2½	....	....	....	....	....	8.80	11.00	11.00	....	18.80	30.80	25.80	.....
3	....	....	....	....	....	10.40	13.00	13.00	....	22.00	36.00	53.00	.....

All styles of heads are not standard in all sizes listed.

Short length screws as indicated by * have undercut heads with the countersunk portion approximately two-thirds of the standard height, with slot depths proportionately less, but with standard head diameters.

Where to Use Parker-Kalon Self-Tapping Screws

	Hardened Steel Screws							Corrosion-Resistant Screws	
Kind of Material	Type A	Type Z	Hex Head Type Z	Type F	Type F-Z	Type U	Type 21	*Type Z	†Type F
Sheet Metal .015 to .050 Inch Thick (Steel, Brass, Aluminum, Monel, Etc.).	✓	✓	✓				✓	✓	✓
Sheet Stainless Steel .015 to .050 Inch Thick.	✓	✓	✓	✓			✓		✓
§**Sheet Metal** .050 to .200 Inch Thick (Steel, Brass, Aluminum, Etc.).		✓	✓	✓		✓	✓		✓
§**Structural Steel** .200 to ½ Inch Thick.			✓	✓		✓			✓
Castings (Aluminum, Magnesium, Zinc, Brass, Bronze Etc.).		✓	✓	✓		✓		✓	✓
Castings (Grey Iron, Malleable Iron, Steel, Etc.).				✓		✓			
Forgings (Steel, Brass, Bronze, Etc.).				✓		✓			
‡**Phenol Formaldehyde:** Molded: Bakelite, Durez, Etc. Cast: Catalin, Etc. Laminated: Formica, Textolite, Etc.		✓	✓	✓	✓	✓		✓	✓
‡**Urea Formaldehyde:** Molded: Plaskon, Beetle, Etc.		✓	✓	✓	✓	✓		✓	✓
‡**Cellulose Acetates and Cellulose Nitrates:** Tenite, Lumarith, Plastacele, Celluloid, Pyralin, Etc.		✓	✓	✓	✓	✓		✓	✓
‡**Acrylate and Styrene Resins:** Lucite, Plexiglas, Styron, Etc.		✓	✓	✓	✓	✓		✓	✓
Plywood, Resin Impregnated: Compreg, Pregwood, Etc.	✓	✓	✓	✓	✓	✓		✓	✓
Asbestos and Other Compositions: Ebony Asbestos, Transite, Etc.	✓	✓	✓		✓			✓	

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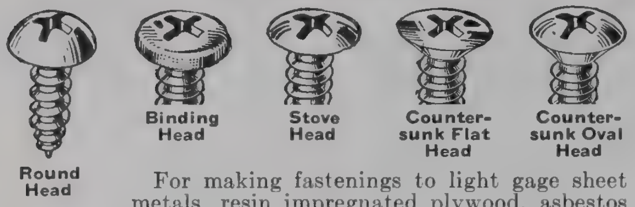
*18-8 Stainless steel Type 302. †Made of Type 410 corrosion-resisting steel. §Type U is not recommended for use in material the thickness of which is less than one diameter of the screw

‡Plastics. Note: Blank space does not necessarily signify that type of screw cannot be used for the purpose; it denotes that the type of self-tapping screw will not generally give the best results in that material.

Type A Parker-Kalon Phillips Recessed Head Screws

Sheet Metal—Hardened Self-Tapping



For making fastenings to light gage sheet metals, resin impregnated plywood, asbestos composition, etc.

When ordering, specify finish. Furnished in brass, zinc, nickel, cadmium or parkerized.

Standard package one gross of a size; 15,000 or more of a size furnished bulk, unless otherwise specified.

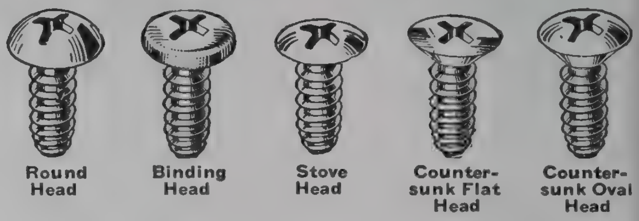
No. 4 Screw Diameter—*Decimal Equivalent, .112 Inch

	Pkg. per Gross		†Bulk per 1000			
Length Inches	Plain Steel Finish	Standard Plated Finish	Plain Steel Finish	Standard Plated Finish	‡Head Styles	Recess No.
¼	$2.10	$2.20	$7.35	$7.60	R B S F O	1
⅜	2.15	2.25	7.55	7.80	R B S F O	1
½	2.20	2.30	7.70	8.04	R B S F O	1
⅝	2.30	2.45	8.05	8.47	R B F O	1
¾	2.40	2.55	8.35	8.85	R B F O	1
No. 6 Screw Diameter—*Decimal Equivalent, .138 Inch						
¼	$2.10	$2.20	$7.25	$7.59	R B S F O	2
⅜	2.15	2.30	7.55	7.97	R B S F O	2
½	2.25	2.45	7.90	8.40	R B S F O	2
⅝	2.35	2.55	8.20	8.79	R B F O	2
¾	2.45	2.70	8.55	9.22	R B F O	2
⅞	2.60	2.80	9.00	9.75	R B F O	2
1	2.75	3.00	9.50	10.34	R B F O	2
No. 7 Screw Diameter—*Decimal Equivalent, .155 Inch						
⅜	$2.25	$2.45	$7.85	$8.44	R B S F O	2
½	2.35	2.60	8.20	8.87	R B S F O	2
⅝	2.45	2.70	8.55	9.30	R B F O	2
¾	2.55	2.80	8.85	9.69	R B F O	2
⅞	2.70	3.00	9.35	10.27	R B F O	2
1	2.85	3.15	9.85	10.85	R B F O	2
No. 8 Screw Diameter—*Decimal Equivalent, .165 Inch						
⅜	$2.35	$2.55	$8.20	$8.79	R B S F O	2
½	2.45	2.70	8.55	9.22	R B S F O	2
⅝	2.55	2.80	8.85	9.69	R B S F O	2
¾	2.65	2.95	9.20	10.12	R B S F O	2
⅞	2.80	3.10	9.70	10.70	R B F O	2
1	2.95	3.30	10.20	11.37	R B F O	2
1¼	3.25	3.70	11.30	12.72	R B F O	2
1½	3.70	4.20	12.80	14.39	R B F O	2
No. 10 Screw Diameter—*Decimal Equivalent, .191 Inch						
⅜	$2.50	$2.80	$8.70	$9.70	R B S F O	2
½	2.65	3.00	9.20	10.29	R B S F O	2
⅝	2.80	3.15	9.70	10.87	R B S F O	2
¾	2.95	3.35	10.20	11.54	R B S F O	2
⅞	3.05	3.50	10.65	12.16	R B F O	2
1	3.25	3.75	11.30	12.98	R B F O	2
1¼	3.75	4.30	13.00	14.84	R B F O	2
1½	4.20	4.90	14.60	16.78	R B F O	2
1¾	4.70	5.50	16.40	18.91	R B F O	2
2	5.25	6.15	18.20	21.05	R B F O	2
No. 12 Screw Diameter—*Decimal Equivalent, .218 Inch						
½	$3.20	$3.70	$11.15	$12.66	R B	3
⅝	3.40	3.90	11.80	13.48	R B	3
¾	3.60	4.15	12.45	14.29	R B F	3
⅞	3.80	4.40	13.15	15.16	R B	3
1	3.95	4.65	13.75	16.01	R B F	3
1¼	4.50	5.30	15.60	18.20	R B F	3
1½	5.05	6.00	17.55	20.57	R B	3
No. 14 Screw Diameter—*Decimal Equivalent, .251 Inch						
½	$3.85	$4.50	$13.45	$15.46	R B	3
⅝	4.05	4.75	14.10	16.36	R B	3
¾	4.25	5.05	14.75	17.26	R B F O	3
⅞	4.50	5.40	15.60	18.45	R B F O	3
1	4.70	5.70	16.40	19.58	R B F O	3
1¼	5.30	6.40	18.40	21.92	R B F O	3
1½	5.90	7.15	20.50	24.52	R B F	3
1¾	6.55	8.00	22.80	27.32	R B F	3
2	7.25	8.85	25.25	30.36	R B F	3

*Subject to commercial tolerances. †Bulk prices apply only on 15000 pieces or more of a size. ‡R—round head, B—binding head, S—stove head, F—countersunk flat head, O—countersunk oval head.

Type Z Parker-Kalon Phillips Recessed Head Screws

Sheet Metal—Hardened Self-Tapping



For making fastenings to light and heavy gage sheet metals, non-ferrous castings, plastics, resin impregnated plywood, asbestos compositions, etc.

When ordering, specify finish. Furnished in brass, zinc, nickel, cadmium or parkerized.

Standard package one gross of a size; 15,000 or more of a size furnished bulk, unless otherwise specified.

No. 4 Screw Diameter—*Decimal Equivalent, .112 Inch

	Pkg. per Gross		†Bulk per 1000			
Length Inches	Plain Steel Finish	Standard Plated Finish	Plain Steel Finish	Standard Plated Finish	‡Head Styles	Recess No.
¼	$2.10	$2.20	$7.35	$7.60	R B S F O	1
5/16	2.15	2.25	7.55	7.80	R B S	1
⅜	2.15	2.25	7.55	7.80	R B S F O	1
½	2.20	2.30	7.70	8.04	R B F O	1
No. 6 Screw Diameter—*Decimal Equivalent, .137 Inch						
¼	$2.10	$2.20	$7.25	$7.59	R B S F O	2
5/16	2.15	2.30	7.55	7.97	R B S F O	2
⅜	2.15	2.30	7.55	7.97	R B S F O	2
½	2.25	2.45	7.90	8.40	R B F O	2
⅝	2.35	2.55	8.20	8.79	R B F O	2
¾	2.45	2.70	8.55	9.22	R B F O	2
No. 7 Screw Diameter—*Decimal Equivalent, .151 Inch						
⅜	$2.25	$2.45	$7.85	$8.44	R B	2
½	2.35	2.60	8.20	8.87	R B	2
No. 8 Screw Diameter—*Decimal Equivalent, .163 Inch						
⅜	$2.35	$2.55	$8.20	$8.79	R B S F O	2
½	2.45	2.70	8.55	9.22	R B S F O	2
⅝	2.55	2.80	8.85	9.69	R B S F O	2
¾	2.65	2.95	9.20	10.12	R B F O	2
⅞	2.80	3.10	9.70	10.70	R B F O	2
1	2.95	3.30	10.20	11.37	R B F O	2
1¼	3.25	3.70	11.30	12.72	R F O	2
No. 10 Screw Diameter—*Decimal Equivalent, .186 Inch						
⅜	$2.50	$2.80	$8.70	$9.70	R B S	2
½	2.65	3.00	9.20	10.29	R B S F O	2
⅝	2.80	3.15	9.70	10.87	R B S F O	2
¾	2.95	3.35	10.20	11.54	R B F O	2
⅞	3.05	3.50	10.65	12.16	R B F O	2
1	3.25	3.75	11.30	12.98	R B F O	2
1¼	3.75	4.30	13.00	14.84	R F O	2
1½	4.20	4.90	14.60	16.78	R F O	2
2	5.25	6.15	18.20	21.05	R F O	2
No. 12 Screw Diameter—*Decimal Equivalent, .212 Inch						
⅜	$2.75	$3.15	$9.55	$10.89	R B	3
½	3.20	3.70	11.15	12.66	R B	3
No. 14 Screw Diameter—*Decimal Equivalent, .243 Inch						
⅜	$3.65	$4.25	$12.60	$14.36	R B S	3
½	3.85	4.50	13.45	15.46	R B S	3
⅝	4.05	4.75	14.10	16.36	R B S	3
¾	4.25	5.05	14.75	17.26	R B F	3
⅞	4.50	5.40	15.60	18.45	R B F	3
1	4.70	5.70	16.40	19.58	R B F	3
1¼	5.30	6.40	18.40	21.92	R F	3
1½	5.90	7.15	20.50	24.52	R F	3
2	7.25	8.85	25.25	30.36	R F	3

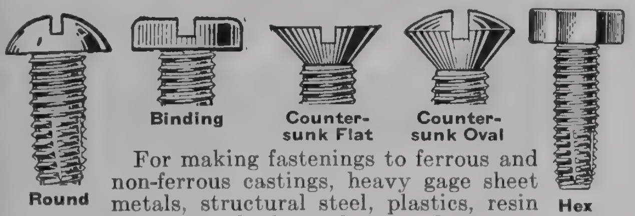
*Subject to commercial tolerances.

†Bulk prices apply on 15000 pieces or more of a size.

‡R—round head, B—binding head, S—stove head, F—countersunk flat head, O—countersunk oval head.

Type F Parker-Kalon Screws

Hardened—Self-Tapping



For making fastenings to ferrous and non-ferrous castings, heavy gage sheet metals, structural steel, plastics, resin impregnated plywood, etc. One gross per box. Available in bulk.

*Mach. Screw Size No.	Screw Lgth. In.	†Head Styles Available	Packaged: Plain Steel Fin. per Gross	Packaged: ‡Plated Fin. per Gross	§Bulk: Plain Steel Fin. per 1000	§Bulk: ‡Std. Plated Fin. per 1000
2-56	1/8	RB	$.58	$.61	$2.75	$2.90
2-56	3/16	RBFO	.58	.61	2.75	2.90
2-56	1/4	RBFO	.58	.61	2.75	2.90
2-56	5/16	RB	.58	.61	2.75	2.90
2-56	3/8	RB	.58	.61	2.75	2.90
4-40	3/16	RB	.58	.61	2.75	2.90
4-40	1/4	RBF	.58	.61	2.75	2.90
4-40	5/16	RBFO	.60	.63	2.90	3.05
4-40	3/8	RBFO	.60	.63	2.90	3.05
4-40	1/2	RBFO	.62	.65	3.00	3.20
6-32	3/16	RB	.61	.64	2.90	3.10
6-32	1/4	RBFH	.61	.64	2.90	3.10
6-32	5/16	RBFO	.63	.68	3.00	3.25
6-32	3/8	RBFOH	.63	.68	3.00	3.25
6-32	1/2	RBFOH	.65	.70	3.15	3.45
6-32	5/8	RBFO	.67	.73	3.25	3.60
6-32	3/4	RBFO	.69	.77	3.40	3.80
6-32	7/8	RBFO	.72	.81	3.50	3.95
6-32	1	RBFO	.75	.84	3.65	4.15
8-32	1/4	RBH	.70	.77	3.45	3.80
8-32	5/16	RB	.70	.77	3.45	3.80
8-32	3/8	RBFOH	.70	.77	3.45	3.80
8-32	1/2	RBFOH	.74	.82	3.65	4.05
8-32	5/8	RBFO	.77	.86	3.85	4.35
8-32	3/4	RBFO	.81	.91	4.05	4.60
8-32	7/8	RBFO	.86	.99	4.30	4.90
8-32	1	RBFO	.91	1.04	4.55	5.25
10-24	5/16	RB	.83	.94	4.00	4.60
10-24	3/8	RBH	.83	.94	4.00	4.60
10-24	1/2	RBFOH	.86	.97	4.20	4.85
10-24	5/8	RBFOH	.89	1.01	4.40	5.10
10-24	3/4	RBFO	.93	1.08	4.65	5.45
10-24	7/8	RBFO	.98	1.15	4.90	5.80
10-24	1	RBFO	1.03	1.20	5.15	6.15
10-24	1 1/4	RBFO	1.23	1.43	6.15	7.25
10-24	1 1/2	RBFO	1.32	1.56	6.65	7.95
10-32	5/16	RB	.83	.94	4.00	4.60
10-32	3/8	RB	.83	.94	4.00	4.60
10-32	1/2	RBFO	.86	.97	4.20	4.85
10-32	5/8	RBFO	.89	1.01	4.40	5.10
10-32	3/4	RBFO	.93	1.08	4.65	5.45
10-32	7/8	RBFO	.98	1.15	4.90	5.80
10-32	1	RBFO	1.03	1.20	5.15	6.15
10-32	1 1/4	RBFO	1.23	1.43	6.15	7.25
10-32	1 1/2	RBFO	1.32	1.56	6.65	7.95
1/4″-20	3/8	RB	1.14	1.33	5.75	6.80
1/4″-20	1/2	RBOH	1.23	1.44	6.25	7.45
1/4″-20	5/8	RBFOH	1.32	1.56	6.75	8.10
1/4″-20	3/4	RBFOH	1.41	1.69	7.25	8.75
1/4″-20	7/8	RBFO	1.50	1.82	7.75	9.45
1/4″-20	1	RBFO	1.58	1.92	8.25	10.15
1/4″-20	1 1/4	RBFO	1.78	2.17	9.25	11.35
1/4″-20	1 1/2	RBFO	1.97	2.41	10.25	12.65
1/4″-20	2	F	2.33	2.91	12.25	15.30
1/4″-20	2 1/2	F	2.72	3.40	14.40	18.15
1/4″-20	3	F	3.10	3.93	16.50	21.00

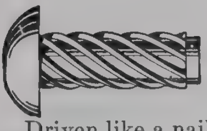
*Decimal equivalents; No. 2-56 diameter, .085 inch; No. 4-40, .111 inch; No. 6-32, .137 inch; No. 8-32, .163 inch; No. 10-24, .189 inch; No. 10-32, .189 inch; and 1/4″-20, .249 inch.

†R—round head; B—binding head; F—countersunk flat head; O—countersunk oval head; H—hex head.

‡Brass, zinc, nickel, cadmium, or Parkerized.

§Applies only on 15000 pieces or more of a size.

Type U Parker-Kalon Hardened Metallic Drive Screws



For making permanent fastenings to ferrous and non-ferrous castings, heavy gage steel, plastics, etc.

Driven like a nail; holds like a screw.

To use, a hole is drilled and the screw is hammered in.

Use of this screw eliminates tapping operation, which reduces the cost of making fastenings.

Unless otherwise specified upon order, round head screws will be furnished.

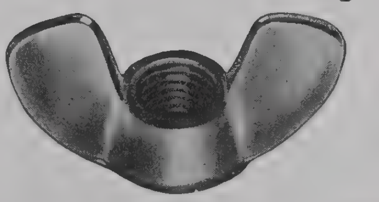
Screw Diam.: No.	Screw Diam.: Dec. Equiv. In.	Lgth. In.	Packaged: Plain Steel Per 1000	Packaged: *Plated Per 1000	†Bulk: Plain Steel Per 1000	†Bulk: *Plated Per 1000
00	.058	1/8	$2.25	$2.45	$1.75	$1.90
00	.058	3/16	2.25	2.45	1.75	1.90
00	.058	1/4	2.25	2.45	1.75	1.90
0	.073	1/8	2.25	2.45	1.75	1.90
0	.073	3/16	2.25	2.45	1.75	1.90
0	.073	1/4	2.25	2.45	1.75	1.90
2	.098	1/8	2.25	2.45	1.75	1.90
2	.098	3/16	2.25	2.45	1.75	1.90
2	.098	1/4	2.25	2.45	1.75	1.90
4	.114	3/16	2.60	2.80	2.00	2.15
4	.114	1/4	2.70	2.90	2.10	2.25
4	.114	5/16	2.85	3.05	2.20	2.35
6	.138	1/4	3.00	3.25	2.30	2.50
6	.138	5/16	3.10	3.40	2.40	2.65
6	.138	3/8	3.10	3.40	2.40	2.65
7	.152	5/16	3.25	3.70	2.50	2.85
7	.152	3/8	3.25	3.70	2.50	2.85
7	.152	1/2	3.35	3.85	2.60	3.00
8	.164	3/8	3.65	4.05	2.75	3.10
8	.164	1/2	3.80	4.30	2.90	3.30
8	.164	5/8	3.95	4.60	3.05	3.55
10	.179	3/8	4.20	4.95	3.20	3.80
10	.179	1/2	4.40	5.15	3.35	4.00
10	.179	5/8	4.60	5.45	3.50	4.20
12	.209	1/2	5.40	6.50	4.15	5.05
12	.209	5/8	5.95	7.00	4.45	5.45
12	.209	3/4	6.15	7.55	4.75	5.85
14	.239	1/2	6.50	8.00	5.00	6.20
14	.239	5/8	7.00	8.65	5.40	6.75
14	.239	3/4	7.50	9.35	5.80	7.30

*Standard plated finishes: brass, zinc, nickel, cadmium, or Parkerized.

†Applies only on 15000 pieces or more of a size.

Packed in boxes containing 1,000 of a size.

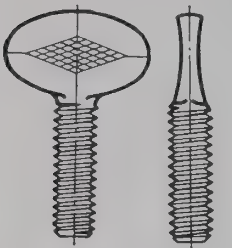
Parker-Kalon Cold-Forged Steel or Brass Wing Nuts



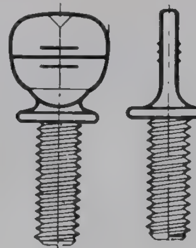
Base of nut is smooth and square with body so that it will draw up tight and flush with the surface of the work.

Screw Size Inches	No. of Thds.	Steel: Pkg. Per 1000	Steel: Bulk per 1000	Steel: Wt. Lb. per 100	Brass: Pkg. Per 1000	Brass: Bulk per 1000	Wt. Lb. per 100	Blank Size	Wing Spread In.	Std. Pkg.
No. 4	40	$16.20	$14.00	3/8	$22.00	$19.50	1/2	AA	21/32	100
No. 6	32	16.20	14.00	3/8	22.00	19.50	1/2	AA	21/32	100
No. 6	32	17.80	15.60	3/4	30.00	27.70	7/8	A	27/32	100
No. 8	32	17.80	15.60	3/4	30.00	27.70	7/8	A	27/32	100
No. 10	24	17.80	15.60	3/4	30.00	27.70	7/8	A	27/32	100
No. 10	32	17.80	15.60	3/4	30.00	27.70	7/8	A	27/32	100
3/16	24	17.80	15.60	3/4	30.00	27.70	7/8	A	27/32	100
No. 12	24	20.40	17.70	1 1/3	40.00	38.00	1 1/2	B	1 1/16	100
1/4	28	20.40	17.70	1 1/3	40.00	38.00	1 1/2	B	1 1/16	100
1/4	20	20.40	17.70	1 1/3	40.00	38.00	1 1/2	B	1 1/16	100
5/16	18	25.00	22.10	2 1/4	57.00	53.90	2 3/8	C	1 7/32	100
5/16	24	25.00	22.10	2 1/4	57.00	53.90	2 3/8	C	1 7/32	100
3/8	16	36.30	32.20	3 2/3	92.50	89.40	4	D	1 13/32	100
3/8	24	36.30	32.20	3 2/3	92.50	89.40	4	D	1 13/32	100
7/16	14	98.00	88.00	9	122.50	211.70	10 1/5	E	1 7/8	50
7/16	20	98.00	88.00	9	......	......	10 1/5	E	1 7/8	50

Parker-Kalon Cold Forged Thumb Screws



Type P



Type S

Supplied in plain steel finish. Specify type desired.

Sold only in standard packing units or multiples thereof. Two or more sizes may be combined to make up quantity specifications. Also in bulk, 5000 or more of a size.

Cadmium, zinc, brass, nickel or copper plated; Parkerized or blue oxidized at extra charge.

Screws with threads other than those listed or with special points made to order if quantity permits. Also applies to screws of intermediate diameters or lengths and special metals and alloys or steel case-hardened. Prices upon application.

Screw sizes subject to commercial tolerances.

Type P, without shoulder, steel only; Type S, with shoulder, steel only.

Length In.	Type P Packaged Per 1000	Type P *Bulk Per 1000	Type S Packaged Per 1000	Type S *Bulk Per 1000	§Plating Per 1000	Screw Size	No. of Thrds.	Approx. Wt., Lb. Per 100
¼	$17.50	$16.30	$24.40	$23.00	$.18	No. 6 (.138″)	32	3/16
⅜	17.50	16.30	.....	.....	.24			¼
½	17.80	16.60	25.00	23.70	.28			¼
⅝	18.30	17.00	.....	.....	.31			5/16
¾	18.70	17.40	25.90	24.50	.34			⅜
1	19.70	18.10	.....	.....	.42			½
⅜	17.50	16.30	.....	.....	.38	No. 8 (.164″)	32	½
½	17.80	16.60	26.10	24.70	.42			½
⅝	18.30	17.00	.....	.....	.49			9/16
¾	18.90	17.40	27.50	25.80	.54			9/16
1	19.70	18.10	.....	.....	.66			¾
⅜	17.50	16.30	25.90	24.70	.54	No. 10 or 3/16″ (.190″)	24 or 32	½
½	17.80	16.60	26.40	25.10	.60			⅝
⅝	18.30	17.00	27.20	25.50	.68			¾
¾	19.00	17.40	27.70	26.00	.74			¾
1	19.80	18.10	28.90	27.20	.89			1
1½	22.00	20.30	.....	.....	1.17			1¼
2	25.00	23.20	.....	.....	1.46			1½
½	20.60	19.00	29.40	27.70	1.25	¼″ (.250″)	20	1⅜
⅝	20.90	19.40	30.00	28.40	1.28			1½
¾	21.50	19.80	30.70	29.10	1.49			1⅝
1	22.60	20.80	32.20	30.40	1.75			2
1¼	23.90	21.90	.....	.....	2.00			2¼
1½	25.30	23.40	36.10	34.00	2.27			2½
2	28.60	26.60	.....	.....	2.78			3
2½	32.50	30.20	.....	.....	3.33			3½
½	37.30	35.30	37.30	35.30	2.38	5/16″ (.312″)	18	2¼
¾	38.30	36.10	38.30	36.10	2.76			2¾
1	39.90	37.70	39.90	37.70	3.22			3¼
1¼	41.80	39.70	.....	.....	3.57			3⅝
1½	44.30	42.10	44.30	42.10	3.94			4
2	51.20	48.50	.....	.....	4.88			4⅞
2½	60.70	56.70	.....	.....	5.78			5¾
3	71.00	66.60	.....	.....	6.54			6½
¾	48.20	45.80	48.20	45.80	4.27	⅜″ (.375″)	16	4
1	50.40	48.20	50.40	48.20	4.88			4¾
1¼	53.40	50.90	.....	.....	5.41			5⅜
1½	57.00	54.50	57.00	54.50	6.14			6
2	66.40	63.70	66.40	63.70	7.25			7¼
†2½	79.80	75.60	.....	.....	8.55			8½
†3	94.80	90.20	.....	.....	9.80			9⅞
†1	112.50	107.40	.....	.....	11.11	½″ (.500″)	13	13
†1½	139.50	134.10	.....	.....	14.29			15
‡2	166.50	157.70	.....	.....	16.13			17
‡2½	188.00	178.70	.....	.....	18.18			19
‡3	209.30	199.60	.....	.....	20.00			21
‡4	252.00	241.20	.....	.....	25.00			25

*Bulk prices apply on 5000 pieces or more of a size.

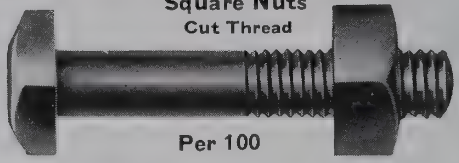
Packed in boxes of 100 with exceptions indicated:

†In boxes of 50. ‡In boxes of 25. §Minimum plating charge, $5.00 per item.

Steel Machine Bolts

American Standard Regular Square Heads and Square Nuts

Cut Thread



Per 100

In Standard Container Quantities

Length Inches	Diameter, Inches ¼	⁵⁄₁₆	⅜	7/16	½	⅝
½	$2.20	$3.40	....	....	....	.....
⅝	....	3.40	....	....	....	.....
¾	2.20	3.40	$4.50	....	....	.....
1	2.30	3.50	4.70	$7.90	$9.20	$16.20
1¼	2.50	3.60	4.90	8.20	9.60	16.70
1½	2.60	3.90	5.20	8.50	10.00	17.20
1¾	3.00	4.40	5.80	9.10	10.70	18.20
2	3.00	4.40	5.80	9.10	10.70	18.20
2¼	3.40	4.90	6.40	9.70	11.50	19.20
2½	3.40	4.90	6.40	9.70	11.50	19.20
2¾	3.70	5.40	7.00	....	12.30	20.20
3	3.70	5.40	7.00	10.40	12.30	20.20
3¼	4.10	5.90	7.60	.....	13.00	21.20
3½	4.10	5.90	7.60	11.00	13.00	21.20
3¾	....	....	8.20	.....	13.70	22.20
4	5.00	6.30	8.20	11.70	13.70	22.20
4¼	....	....	....	.....	14.50	23.20
4½	5.30	7.20	8.80	12.30	14.50	23.20
4¾	....	....	....	.....	15.30	24.20
5	5.60	7.60	9.60	13.00	15.30	24.20
5½	5.90	8.00	10.20	13.70	16.10	25.20
6	6.20	8.40	10.80	14.30	16.90	26.20
6½	7.60	10.20	13.00	18.40	20.30	27.20
7	8.00	10.70	13.70	19.30	21.20	28.20
7½	....	.....	14.30	.....	22.10	29.20
8	8.70	11.60	15.00	21.10	23.00	30.20
8½	....	.....	15.60	.....	23.90	31.20
9	....	.....	16.30	22.90	24.80	32.20
9½	....	.....	16.90	.....	25.70	33.20
10	....	.....	17.60	.....	26.60	34.20
10½	....	.....	.....	.....	29.40	36.20
11	....	.....	19.00	.....	29.40	36.20
11½	....	.....	.....	.....	31.20	38.20
12	....	.....	20.40	.....	31.20	38.20
13	....	.....	.....	.....	33.00	40.20
14	....	.....	.....	.....	34.80	42.20
15	....	.....	.....	.....	36.60	44.20
16	....	.....	.....	.....	38.40	46.20
17	....	.....	.....	.....	40.20	48.20
18	....	.....	.....	.....	42.00	50.20
19	....	.....	.....	.....	43.80	52.20
20	....	.....	.....	.....	45.60	54.20
22	....	.....	.....	.....	49.20	58.20
24	....	.....	.....	.....	52.80	62.20

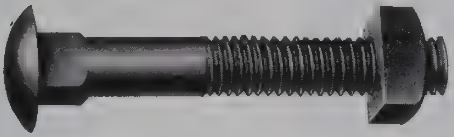
Length Inches	Diameter, Inches ¾	⅞	1	1⅛	1¼
1	$21.90	.....	.....	.....	......
1¼	21.90	.....	.....	.....	......
1½	21.90	$33.40	.....	.....	......
1¾	23.20	35.20	.....	.....	......
2	23.20	35.20	$48.80	.....	......
2¼	24.50	37.00	.....	.....	......
2½	24.50	37.00	51.10	.....	......
2¾	25.80	38.80	.....	.....	......
3	25.80	38.80	33.40	.....	......
3¼	27.10	40.60	.....	.....	......
3½	27.10	40.60	55.70	.....	......
3¾	28.40	42.40	58.00	.....	......
4	28.40	42.40	58.00	$97.00	$115.50
4¼	29.70	44.20	.....	.....	......
4½	29.70	44.20	60.30	97.60	118.80
4¾	31.10	.....	.....	.....	......
5	31.10	46.00	62.60	102.20	122.10
5½	32.30	47.80	64.90	104.80	125.40
6	33.60	49.60	67.20	107.40	128.70
6½	34.90	51.40	69.50	......	......
7	36.20	53.20	71.80	112.60	125.30
7½	37.50	55.00	74.10	......	......
8	38.80	56.80	76.40	117.80	141.90
8½	40.10	58.60	.....	......	......
9	41.40	60.40	81.00	123.00	148.50
9½	42.70	.....	.....	......	......
10	44.00	64.00	85.60	128.20	155.10
10½	46.60	.....	.....	......	......
11	46.60	67.60	90.20	133.40	161.70
11½	49.20	.....	.....	......	......
12	49.20	71.20	94.80	138.60	168.30
13	51.80	74.80	99.40	......	......
14	54.40	78.40	104.00	149.00	181.50
15	57.00	82.00	108.60	154.20	188.10
16	59.60	85.60	113.20	159.40	194.70
17	62.60	89.20	117.80	164.60	201.30
18	64.80	92.80	122.40	169.80	207.90
19	67.40	96.40	......	......	......
20	70.00	100.00	......	......	......
22	75.20	107.20	......	......	......
24	80.40	114.40	......	......	......

Sizes listed are considered Standard, all other sizes are non-standard, prices on request.

Steel Carriage Bolts

Regular Square Nuts

American Standard—Cut Thread



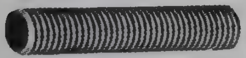
Per 100—In Standard Container Quantities

Sizes listed below are considered standard; other sizes are non-standard, prices on request.

Number of Bolts per Package or Carton: 3⁄16 and 1⁄4 inch diameters, to 8 inches long inc., 100; 5⁄16 inch diameter, to 10 inches long inc., 50; 3⁄8 and 7⁄16 inch diameters, to 12 inches long inc., 50; 1⁄2 inch diameter, to 8 inches long inc., 50; 1⁄2 inch diameter, 8½ to 12 inches inc., 25; 5⁄8 inch diameter, to 8 inches long inc., 25.

Lgth. In.	Diameter, Inches							
	3⁄16	1⁄4	5⁄16	3⁄8	7⁄16	1⁄2	5⁄8	3⁄4
½	$2.10	$2.10	....	....	....	....	.....	.....
⅝	2.10	2.10	....	....	....	....	.....	.....
¾	2.10	2.10	$3.20	$4.00	....	....	.....	.....
1	2.20	2.20	3.30	4.20	$7.00	$8.50	.....	.....
1¼	2.30	2.30	3.40	4.40	7.20	8.80	.....	.....
1½	2.40	2.40	3.60	4.70	7.50	9.20	$17.20	.....
1¾	2.70	2.70	4.00	5.20	8.10	9.90	.....	.....
2	2.70	2.70	4.00	5.20	8.10	9.90	18.20	$26.20
2¼	3.10	3.10	4.50	5.80	8.80	10.70	.....	.....
2½	3.10	3.10	4.50	5.80	8.80	10.70	19.20	27.50
2¾	....	3.40	5.00	6.40	9.50	11.50	20.20	.....
3	3.40	3.40	5.00	6.40	9.50	11.50	20.20	28.80
3¼	....	3.70	5.50	7.00	.....	12.30	.....	.....
3½	3.70	3.70	5.50	7.00	10.20	12.30	21.20	30.10
3¾	....	4.60	5.90	7.60	.....	13.10	.....	.....
4	4.60	4.60	5.90	7.60	10.80	13.10	22.20	31.40
4¼	....	....	6.80	8.20	.....	.....	.....	.....
4½	....	4.90	6.80	8.20	11.50	13.90	23.20	32.70
5	....	5.20	7.20	9.00	12.20	14.70	24.20	34.00
5½	....	5.50	7.70	9.60	12.90	15.60	25.20	35.30
6	....	5.80	8.10	10.20	13.60	16.40	26.20	36.60
6½	....	7.30	9.80	12.60	16.50	19.50	27.20	37.90
7	....	7.70	10.30	13.30	17.40	20.40	28.20	39.20
7½	....	8.00	10.70	13.90	18.30	21.30	29.20	40.50
8	....	8.40	11.20	14.60	19.20	22.20	30.20	41.80
8½	....	....	.....	15.20	.....	24.10	.....	43.00
9	....	....	12.10	15.90	21.00	25.00	32.20	44.40
9½	....	....	.....	16.50	.....	25.90	.....	.....
10	....	....	13.00	17.20	22.80	26.80	34.20	47.00
10½	....	....	.....	.....	.....	28.60	.....	.....
11	....	....	.....	18.60	.....	28.60	36.20	.....
11½	....	....	.....	.....	.....	30.40	.....	.....
12	....	....	.....	20.00	.....	30.40	38.20	.....
13	....	....	.....	.....	.....	32.20	.....	.....
14	....	....	.....	.....	.....	34.00	.....	.....
15	....	....	.....	.....	.....	35.80	.....	.....
16	....	....	.....	.....	.....	37.60	.....	.....
18	....	....	.....	.....	.....	41.20	.....	....

Redi-Bolt Threaded Steel Rods



For hanging equipment; mounting machinery and equipment; repairs on farm machinery; home repairs; and many uses for construction and repair jobs.

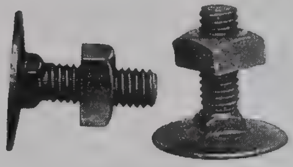
Made of cold drawn steel; rust-resistant protective coating; precision-cut standard threads.

Can be used full length or cut to any size; easy to heat and bend to any shape.

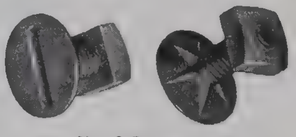
Size In.	24-Inch Lengths			36-Inch Lengths		
	Per Rod	No. of Rods per Bundle	Wt. Lb. per Bundle	Per Rod	No. of Rods per Bundle	Wt. Lb. per Bundle
¼	$.40	5	1¼	$.60	5	2
5⁄16	.47	5	2	.70	5	3
⅜	.53	5	2¾	.80	5	4
7⁄16	.64	5	3¾	.96	5	5¾
½	.73	5	5	1.10	5	7¾
⅝	1.13	3	5	1.70	3	7½
¾	1.40	3	7¼	2.10	3	11

Steel Elevator Bolts

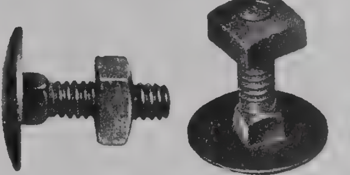
With Finished Points and American Standard Regular Square Nuts



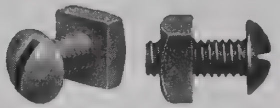
No. 1 Large Counter-Sunk Head



No. 3 Slotted Key Head



No. 2 Oval Head



No. 5 Slotted Button Head

Size ¼-inch packed 100 in a standard package; 5⁄16 and ⅜ inch packed 50 in standard package.

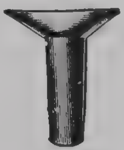
Manufacturers' Standard List—Per 100

Length Inches	Diameter, Inches			Length Inches	Diameter, Inches		
	¼	5⁄16	⅜		¼	5⁄16	⅜
¾	*$3.30	$4.50	....	1½	*$3.75	$5.25	$7.20
⅞	* 3.45	....		1¾	3.90	5.50	7.60
1	* 3.45	4.75	$6.40	2	4.05	5.75	8.00
1¼	* 3.60	5.00	6.80	2½	4.35	6.25	8.80

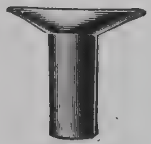
Sizes listed above are considered Manufacturers' Standard sizes with Nos. 1 or 2 heads; all other sizes and bolts with Nos. 3 or 5 heads are non-standard, prices on request.

*Also stocked in No. 3 head.

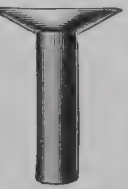
Copper Belt Rivets and Burs



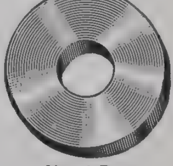
No. 8 Rivet



No. 6 Rivet



No. 7 Rivet



No. 4 Bur

Net Extras to be added to Base Price per Pound

Gage No.	Rivets							Burs Only	
		Uniform Lengths			Assorted Lengths				
		Boxed			Boxed				
	Bulk	1-Lb.	½-Lb.	¼-Lb.	1-Lb.	½-Lb.	¼-Lb.	Bulk	1-Lb. Box
4 to 9	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...
11–12	...	...	...	...	...	...	...	...	...
13–14–15	...	...	...	...	...	...	...	...	...

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

Brass Rods

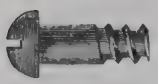
Continuous Thread

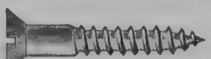
No. 30

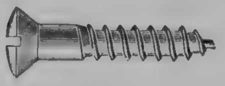
Brass ¼-inch continuous thread rod made in any length. Specify length in ordering.

Price.................................... per foot ....

Steel and Brass Slotted Head Wood Screws


Round Head


Flat Head


Oval Head

Steel

No.	Per Gross	¶Gross in Bdl.
¼-Inch		
2	*$.88	10
4	* .92	10
⅜-Inch		
2	*$.92	10
3	* .92	10
4	† .96	10
5	* .96	10
6	†1.00	10
½-Inch		
2	*$.96	10
3	* .96	10
4	†1.00	10
5	†1.00	10
6	†1.04	10
7	*1.08	10
8	*1.16	10
⅝-Inch		
2	*$1.00	10
3	*1.00	10
4	†1.04	10
5	†1.04	10
6	†1.08	10
7	*1.12	10
8	†1.20	10
¾-Inch		
4	†$1.08	10
5	†1.08	10
6	†1.12	10
7	†1.20	10
8	†1.28	10
9	*1.42	10
10	*1.58	10
12	*1.80	10
⅞-Inch		
4	*$1.12	10
5	*1.12	10
6	†1.20	10
7	*1.28	10
8	†1.36	10

No.	Per Gross	¶Gross in Bdl.
⅞-Inch Cont.		
9	*$1.50	10
10	*1.66	10
12	*1.96	10
1-Inch		
4	*$1.20	10
5	†1.20	10
6	†1.32	10
7	†1.40	10
8	†1.46	10
9	*1.58	10
10	†1.74	10
12	*2.12	10
14	*2.62	10
1¼-Inch		
4	‡$1.42	10
5	‡1.42	10
6	†1.50	10
7	†1.54	10
8	†1.62	10
9	*1.74	10
10	†1.92	10
12	†2.30	10
14	*2.96	5
16	‡3.92	5
1½-Inch		
6	†$1.66	10
7	†1.70	10
8	†1.80	10
9	*1.96	10
10	†2.12	10
12	†2.54	5
14	*3.30	5
16	‡4.34	5
18	‡5.30	1
1¾-Inch		
8	*$2.00	10
9	‡2.18	5
10	†2.34	5
12	†2.84	5

No.	Per Gross	¶Gross in Bdl.
1¾-Inch Cont.		
14	*$3.64	5
16	‡4.75	1
2-Inch		
8	*$2.20	5
9	*2.38	5
10	†2.56	5
12	†3.14	5
14	*3.98	1
16	‡5.16	1
18	‡6.40	1
2¼-Inch		
10	‡$2.80	5
12	‡3.46	1
14	‡4.34	1
2½-Inch		
8	*$2.62	5
9	‡2.80	5
10	*3.04	1
12	*3.78	1
14	*4.84	1
16	‡6.34	1
18	‡7.90	1
3-Inch		
10	*$3.54	1
12	*4.80	1
14	*6.00	1
16	‡7.50	1
18	‡9.40	½
3½-Inch		
10	‡$4.92	1
12	‡5.84	1
14	‡7.16	1
16	‡8.35	½
18	‡10.45	½
4-Inch		
14	‡$8.00	½
16	‡9.15	½
18	‡11.70	½
..	.....	...

Brass

No.	Per Gross	¶Gross in Bdl.
¼-Inch		
2	*$1.12	10
4	*1.30	10
⅜-Inch		
2	*$1.22	10
3	‡1.32	10
4	†1.44	10
6	§1.75	10
½-Inch		
2	*$1.34	10
3	‡1.44	10
4	†1.58	10
5	†1.74	10
6	†1.94	10
8	*2.50	10
⅝-Inch		
4	†$1.76	10
5	†1.96	10
6	†2.20	10
8	†2.84	10
¾-Inch		
4	†$1.96	10
5	†2.20	10
6	†2.45	10
7	*2.84	10
8	†3.18	10
9	*3.52	10
10	*3.98	10

No.	Per Gross	¶Gross in Bdl.
⅞-Inch		
4	‡$2.16	10
5	‡2.42	10
6	†2.70	10
7	‡3.14	10
8	†3.52	10
9	‡3.92	10
10	*4.40	10
1-Inch		
4	*$2.38	10
5	†2.64	10
6	†2.98	10
7	†3.44	10
8	†3.85	10
9	*4.30	10
10	†4.86	10
12	*6.25	10
1¼-Inch		
6	†$3.46	10
7	†4.05	10
8	†4.52	10
9	*5.10	10
10	†5.65	10
12	*7.28	10
14	‡9.32	5

No.	Per Gross	¶Gross in Bdl.
1½-Inch		
6	†$4.08	10
7	*4.68	10
8	†5.20	10
9	*5.88	10
10	†6.58	10
12	*8.44	5
14	‡10.80	5
1¾-Inch		
8	*$5.88	10
10	*7.45	5
12	*9.58	5
14	‡12.28	5
2-Inch		
8	†$6.54	5
10	†8.38	5
12	*10.98	5
14	*13.70	1
2½-Inch		
10	*$10.38	1
12	*13.70	1
14	*17.08	1
16	‡21.34	1
3-Inch		
12	‡$15.98	1
14	‡20.34	1
16	‡25.10	1

*Flat or round head.
†Flat, round or oval head.
‡Flat head only.
§Round head only.
¶Standard bundles.

Diameters, lengths, and head styles not standard will be available on order of a sufficient quantity.

Armstrong Drop Forged Eyebolts

Blank or Threaded

Without Shoulder

With Shoulder

Drop forged from the best mild steel treated to give increased tensile strength.

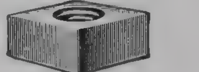
When ordering, specify whether blank or threaded eyebolts are wanted. Threaded eyebolts will be shipped unless blank is specified.

No. Without Shoulder	No. With Shoulder	Blank Std. Lgth. Each	Thrd. Std. Lgth. Each	No. Without Shoulder	No. With Shoulder	Blank Std. Lgth. Each	Thrd. Std. Lgth. Each
..	21	$.16	$.24	9	29	$.71	$.97
..	22	.17	.26	10	30	.97	1.31
3	23	.19	.29	11	31	1.42	1.84
4	24	.21	.32	12	32	2.03	2.56
5	25	.24	.37	14	34	3.53	4.42
6	26	.29	.43	15	35	5.29	6.61
7	27	.39	.57	16	36	7.49	9.35
8	28	.53	.74	17	..	12.35	15.52

No.		Size Shank, In.			Diam. Eye, Inches		Cap. Blanks; Tons of 2000 Lb.		
Without Shoulder	With Shoulder	Diam.	Std. Lgth. Under Eye Blank and Thrd.	Max. Lgth. in Stock Blank	Inside	Outside	Safe Working Load	Approx. Breaking Strain	Wt. Lb.
..	21	¼	1	3	¾	1 3/16	.2	1.5	1/16
..	22	5/16	1⅛	4	⅞	1 7/16	.4	2.	1/10
3	23	⅜	1¼	4½	1	1 21/32	.7	3.	⅙
4	24	7/16	1⅜	4½	1 3/32	1 27/32	1.	4.	⅕
5	25	½	1½	4½	1 3/16	2 1/16	1.3	5.	¼
6	26	9/16	1⅝	4½	1 9/32	2 9/32	1.5	6.	⅖
7	27	⅝	1¾	4½	1⅜	2½	2.	8.	⅝
8	28	¾	2	5	1½	2 13/16	3.	12.	1
9	29	⅞	2¼	5	1 11/16	3¼	3.5	16.	1⅓
10	30	1	2½	5	1 13/16	3 9/16	4.	20.	2
11	31	1⅛	2¾	5	2	4	5.	23.	2¾
12	32	1¼	3	6	2 3/16	4 7/16	7.5	33.	3½
14	34	1½	3½	6	2½	5 3/16	9.	42.	6
15	35	1¾	3¾	6	2⅞	6 1/16	11.	53.	12½
16	36	2	4	6	3¼	6⅞	13.	68.	18
17	..	2½	5	6	4	8 9/16	16.	85.	31

§Sizes other than standard are available; information and prices on application.

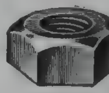
Stove Bolt and Machine Screw Nuts



Square or Hexagon

Steel and Brass

In Packages



For Screw Size	No. of Threads Coarse	No. of Threads Fine	Steel Square per Gross	Steel Hexagon per Gross	Brass Square per Gross	Brass Hexagon per Gross	Width across Flats In.	Thickness In.
2	56	64	$.67	$.75	$.90	$.85	3/16	1/16
3	48	56	.67	.75	.90	.85	3/16	1/16
4	40	48	.62	.66	.95	.90	¼	3/32
5	40	44	.64	.70	1.25	1.15	5/16	7/64
6	32	40	.64	.70	1.25	1.15	5/16	7/64
8	32	36	.67	.76	1.50	1.35	11/32	⅛
10	24	32	.70	.82	1.60	1.45	⅜	⅛
12	24	28	.90	1.05	2.80	2.40	7/16	5/32
¼	20	28	1.00	1.20	3.20	2.70	7/16	3/16
5/16	18	24	1.60	1.90	6.30	5.20	9/16	7/32
⅜	16	24	2.20	2.60	8.40	7.00	⅝	¼

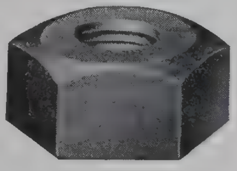
New Standards for Finished Hex Nuts

Diam. In.	Width, Inches: Old Light Semi-Finished Nut	Width, Inches: Old Regular Semi-Finished Nut	Width, Inches: New Finished Nut	Height, Inches: Old Light Semi-Finished Nut	Height, Inches: Old Regular Semi-Finished Nut	Height, Inches: New Finished Nut
1/4	7/16	7/16	7/16	7/32	13/64	7/32
5/16	1/2	9/16	1/2	17/64	1/4	17/64
3/8	9/16	5/8	9/16	21/64	5/16	21/64
7/16	5/8	3/4	11/16	3/8	23/64	3/8
1/2	3/4	13/16	3/4	7/16	27/64	7/16
9/16	7/8	7/8	7/8	31/64	31/64	31/64
5/8	15/16	1	15/16	35/64	17/32	35/64
3/4	1 1/16	1 1/8	1 1/8	21/32	41/64	41/64
7/8	1 1/4	1 5/16	1 5/16	49/64	3/4	3/4
1	1 7/16	1 1/2	1 1/2	7/8	55/64	55/64
1 1/8	1 5/8	1 11/16	1 11/16	63/64	31/32	31/32
1 1/4	1 13/16	1 7/8	1 7/8	1 3/32	1 1/16	1 1/16
1 3/8	2	2 1/16	2 1/16	1 13/64	1 11/64	1 11/64
1 1/2	2 3/16	2 1/4	2 1/4	1 5/16	1 9/32	1 9/32

Hexagon Hot Pressed Nuts

American Standard Regular

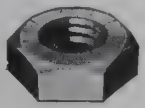
Tapped Unified National Coarse Thread Series



For nuts with other tapping, prices upon application.

Blank nuts are available, prices upon application.

Size Bolt and Threads per Inch	Bulk per 100	Packaged per 100	Width Across Flats In.	Thickness In.	Pkg. Qty.	Keg Qty.	Wt. Lb. per 100
1/4—20	$.90	$1.04	7/16	7/32	100	24000	.77
5/16—18	1.40	1.61	9/16	17/64	100	12000	1.42
3/8—16	1.90	2.19	5/8	21/64	100	8000	2.21
7/16—14	2.95	3.39	3/4	3/8	50	4500	3.40
1/2—13	3.70	4.26	13/16	7/16	50	4500	4.84
9/16—12	5.10	5.87	7/8	1/2	50	3200	6.61
5/8—11	7.00	8.05	1	35/64	50	2300	8.87
3/4—10	10.55	12.13	1 1/8	21/32	50	1500	12.70
7/8— 9	15.75	18.11	1 5/16	49/64	25	950	19.90
1 — 8	23.40	26.91	1 1/2	7/8	25	725	29.40
1 1/8— 7	32.00	36.80	1 11/16	1	25	500	41.90
1 1/4— 7	45.15	51.92	1 7/8	1 3/32	20	375	59.30
1 3/8— 6	62.85	.....	2 1/16	1 13/64	..	275	78.80
1 1/2— 6	81.50	.....	2 1/4	1 5/16	..	220	101.50
1 5/8— 5 1/2	119.50	.....	2 7/16	1 27/64	..	170	128.80
1 3/4— 5	148.50	.....	2 5/8	1 17/32	..	130	162.00
2 — 4 1/2	213.40	.....	3	1 3/4	..	80	240.50



Semi-Finished Brass Jam Nuts

American Standard Heavy

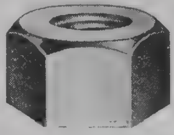
Chamfered on top and countersunk on bottom. Milled from hexagon brass rod.

Bolt Size In.	Thrds. per In.	Per 100	Diam. Inches	Thick. Inches	No. In. Std. Pkg.
1/4,	20	$2.40	1/2	11/64	100
5/16,	18	3.20	19/32	13/64	100
3/8,	16	5.20	11/16	15/64	100
7/16,	14	7.20	3/4	17/64	100
1/2,	13	9.60	7/8	19/64	100
5/8,	11	17.00	1 1/16	23/64	100
3/4,	10	27.00	1 1/4	27/64	50
7/8,	9	45.00	1 7/16	31/64	50
1,	8	68.00	1 5/8	35/64	25

Hexagon Semi-Finished Nuts

American Standard Heavy

Tapped Unified National Coarse Thread Series



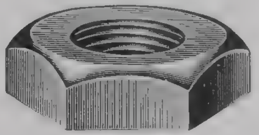
For nuts with other tapping, prices upon application.

Size Bolt and Threads per Inch	Bulk per 100	Packaged per 100	Width Across Flats In.	Thickness In.	Pkg. Qty.	Keg Qty.	Wt. Lb. per 100
1/4 —20	$1.30	$1.50	1/2	15/64	100	15000	1.20
5/16—18	1.70	1.96	9/16	19/64	100	9000	2.02
3/8 —16	2.50	2.88	11/16	23/64	100	6000	3.20
7/16—14	3.60	4.14	3/4	27/64	50	3600	4.70
1/2 —13	4.80	5.52	7/8	31/64	50	3300	6.70
9/16—12	7.70	8.86	15/16	35/64	50	2300	9.00
5/8 —11	8.65	9.95	1 1/16	39/64	50	1800	11.90
3/4 —10	13.00	14.95	1 1/4	47/64	50	1000	19.20
7/8 — 9	20.15	23.17	1 7/16	55/64	25	650	29.20
1 — 8	29.15	33.52	1 5/8	63/64	25	500	42.30
1 1/8 — 7	43.00	49.45	1 13/16	1 7/64	25	350	58.50
1 1/4 — 7	56.55	65.03	2	1 7/32	20	270	81.20
1 3/8 — 6	76.70	.....	2 3/16	1 11/32	...	200	105.30
1 1/2 — 6	95.45	.....	2 3/8	1 15/32	...	150	136.50
1 5/8 — 5 1/2	189.05	.....	2 9/16	1 19/32	...	120	171.00
1 3/4 — 5	225.60	.....	2 3/4	1 23/32	...	95	212.00
1 7/8 — 5	276.25	.....	2 15/16	1 27/32	...	80	256.00
2 — 4 1/2	326.55	.....	3 1/8	1 31/32	...	65	308.50
2 1/4 — 4 1/2	534.25	.....	3 1/2	2 13/64	...	48	430.00
2 1/2 — 4	717.10	.....	3 7/8	2 29/64	...	42	590.00
2 3/4 — 4	951.50	.....	4 1/4	2 45/64	...	25	764.00
3 — 4	1250.00	.....	4 5/8	2 61/64	...	20	969.00
3 1/4 — 4	1914.00	.....	5	3 3/16	...	15	1218.00
3 1/2 — 4	2397.00	.....	5 3/8	3 7/16	...	12	1535.00
3 3/4 — 4	3100.00	.....	5 3/4	3 11/16	...	10	1890.00
4 — 4	3600.00	.....	6 1/8	3 15/16	...	8	2320.00

Hexagon Semi-Finished Jam Nuts

American Standard Heavy

Tapped Unified National Coarse Thread Series



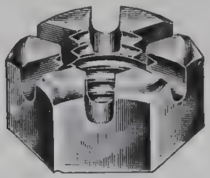
For nuts with other tapping, prices upon application.

Size Bolt and Threads per Inch	Bulk per 100	Packaged per 100	Width Across Flats In.	Thickness In.	Pkg. Qty.	Keg Qty.	Wt. Lb. per 100
1/4 —20	$1.20	$1.38	1/2	11/64	100	22000	.92
5/16—18	1.50	1.73	9/16	13/64	100	12500	1.43
3/8 —16	2.25	2.59	11/16	15/64	100	9000	2.15
7/16—14	3.25	3.74	3/4	17/64	50	5100	3.07
1/2 —13	4.30	4.95	7/8	19/64	50	5300	4.28
9/16—12	6.85	7.88	15/16	21/64	50	3600	5.56
5/8 —11	7.50	8.63	1 1/16	23/64	50	3000	7.33
3/4 —10	11.30	13.00	1 1/4	27/64	50	1800	11.40
7/8 — 9	17.00	19.55	1 7/16	31/64	25	1200	17.10
1 — 8	23.45	26.97	1 5/8	35/64	25	850	24.20
1 1/8 — 7	34.75	39.96	1 13/16	39/64	25	600	33.00
1 1/4 — 7	48.00	55.20	2	23/32	20	440	50.00
1 3/8 — 6	65.70	.....	2 3/16	25/32	...	350	64.50
1 1/2 — 6	83.45	.....	2 3/8	27/32	...	260	81.30
1 5/8 — 5 1/2	172.00	.....	2 9/16	29/32	...	220	100.70
1 3/4 — 5	204.90	.....	2 3/4	31/32	...	160	123.50
1 7/8 — 5	250.85	.....	2 15/16	1 1/32	...	140	148.00
2 — 4 1/2	285.70	.....	3 1/8	1 3/32	...	110	178.50

Hexagon Semi-Finished Slotted Nuts

American Standard Regular

Tapped Unified National Coarse Thread Series



For nuts with other tapping, prices on application.

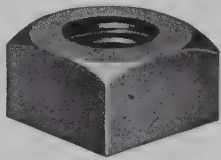
Size Bolt and Threads per Inch	Bulk per 100	Packaged per 100	Width Across Flats In.	Thickness In.	Slot In. Wdth.	Slot In. Dpth.	Pkg. Qty.	Keg Qty.	Wt. Lb. per 100
1/4—20	$1.75	$2.01	7/16	13/64	5/64	3/32	100	24000	.62
5/16—18	2.25	2.59	9/16	1/4	3/32	3/32	100	12000	1.15
3/8—16	2.75	3.16	5/8	5/16	1/8	1/8	100	8000	1.87
7/16—14	3.80	4.37	3/4	23/64	1/8	5/32	50	4500	2.81
1/2—13	4.60	5.29	13/16	27/64	5/32	5/32	50	4500	4.04
9/16—12	6.20	7.13	7/8	31/64	5/32	3/16	50	3200	5.30
5/8—11	8.55	9.83	1	17/32	3/16	7/32	50	2300	6.84
3/4—10	12.25	14.09	1 1/8	41/64	3/16	1/4	50	1500	10.30
7/8— 9	19.60	22.54	1 5/16	3/4	3/16	1/4	25	950	16.30
1 — 8	27.70	31.86	1 1/2	55/64	1/4	9/32	25	725	24.00
1 1/8— 7	*37.00	*42.55	1 11/16	31/32	1/4	11/32	25	500	34.00
1 1/4— 7	*52.55	*60.43	1 7/8	1 1/16	5/16	3/8	20	375	49.00
1 3/8— 6	*71.00	.....	2 1/16	1 11/64	5/16	3/8	...	275	66.00
1 1/2— 6	*90.50	.....	2 1/4	1 9/32	3/8	7/16	...	220	88.00

*Non-stock sizes.

Square Nuts

American Standard Regular

Tapped Unified National Coarse Thread Series

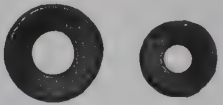


For nuts with other tapping, prices upon application. Blank nuts, prices upon application.

Regular cold punched square nuts prices upon application.

Size Bolt and Threads per Inch	Bulk per 100	Packaged per 100	Width Across Flats In.	Thickness In.	Pkg. Qty.	Keg Qty.	Wt. Lb. per 100
1/4—20	$.75	$.86	7/16	7/32	100	23000	.93
5/16—18	1.20	1.38	9/16	17/64	100	11000	1.60
3/8—16	1.65	1.90	5/8	21/64	100	7700	2.65
7/16—14	2.65	3.05	3/4	3/8	50	4000	3.97
1/2—13	3.45	3.97	13/16	7/16	50	4000	5.83
9/16—12	4.85	5.58	7/8	1/2	50	2500	7.95
5/8—11	6.50	7.48	1	35/64	50	2000	10.70
3/4—10	8.85	10.18	1 1/8	21/32	50	1300	15.40
7/8— 9	14.80	17.02	1 5/16	49/64	25	850	24.60
1 — 8	21.80	25.07	1 1/2	7/8	25	650	36.20
1 1/8— 7	28.30	32.55	1 11/16	1	25	475	51.00
1 1/4— 7	40.40	46.46	1 7/8	1 3/32	20	340	72.70
1 3/8— 6	54.35	.....	2 1/16	1 13/64	..	240	96.90
1 1/2— 6	71.55	.....	2 1/4	1 5/16	..	170	125.00
1 5/8— 5 1/2	105.60	.....	2 7/16	1 27/64	..	125	161.00
1 3/4— 5	132.70	.....	2 5/8	1 17/32	..	100	199.00
2 — 4 1/2	198.80	.....	3	1 3/4	..	60	295.50

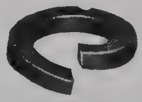
Standard Wrought Washers



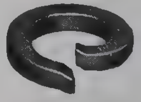
Size of Bolt	Per 100 Lb.	Outside Diameter Inches	Inside Diameter Inches	Birmingham Gage No.	Estimated Number in 100 Lb.
3/16	$14.00	9/16	1/4	18	36,200
1/4	12.20	3/4	5/16	16	14,900
5/16	11.70	7/8	3/8	14	9,000
3/8	11.00	1	7/16	14	6,700
7/16	11.00	1 1/4	1/2	14	4,100
1/2	10.80	1 3/8	9/16	12	2,600
9/16	10.60	1 1/2	5/8	12	2,200
5/8	10.40	1 3/4	11/16	10	1,300
3/4	10.30	2	13/16	9	910
7/8	10.30	2 1/4	15/16	8	652
1	10.30	2 1/2	1 1/16	8	532
1 1/8	10.30	2 3/4	1 1/4	8	454
1 1/4	10.60	3	1 3/8	8	384
1 3/8	10.60	3 1/4	1 1/2	7	300
1 1/2	10.60	3 1/2	1 5/8	7	260
1 5/8	10.60	3 3/4	1 3/4	7	227
1 3/4	10.60	4	1 7/8	7	200
1 7/8	10.60	4 1/4	2	7	176
2	10.60	4 1/2	2 1/8	7	159
2 1/4	11.00	4 3/4	2 3/8	5	121
2 1/2	11.00	5	2 5/8	4	104
2 3/4	12.00	5 1/4	2 7/8	3	91
3	14.00	5 1/2	3 1/8	2	77

Lock Washers

A.S.A. Standard



Plain Pattern



Positive Pattern

Size No. or in.	Steel Size, Inches Light	Medium	Heavy	Extra Heavy
No. 2	.030x.015	.035x.020	.040x.025	.053x.027
No. 3	.035x.020	.040x.025	.047x.031	.062x.034
No. 4	.035x.020	.040x.025	.047x.031	.062x.034
No. 5	.040x.025	.047x.031	.055x.040	.079x.045
No. 6	.040x.025	.047x.031	.055x.040	.079x.045
No. 8	.047x.031	.055x.040	.062x.047	.096x.057
No. 10	.055x.040	.062x.047	.070x.056	.112x.068
No. 12	.062x.047	.070x.056	.077x.063	.130x.080
3/16	.055x.040	.062x.047	.070x.056	.112x.068
1/4	.107x.047	.109x.062	.110x.077	.132x.084
5/16	.117x.056	.125x.078	.130x.097	.143x.108
3/8	.136x.070	.141x.094	.145x.115	.170x.123
7/16	.154x.085	.156x.109	.160x.133	.186x.143
1/2	.170x.099	.171x.125	.176x.151	.204x.152
9/16	.186x.113	.188x.141	.193x.170	.223x.182
5/8	.201x.126	.203x.156	.210x.189	.242x.202
11/16	.216x.138	.219x.172	.227x.207	.260x.221
3/4	.233x.153	.234x.188	.244x.226	.279x.241
13/16	.249x.168	.250x.203	.262x.246	.298x.261
7/8	.264x.179	.266x.219	.281x.266	.322x.285
15/16	.277x.191	.281x.234	.298x.284	.345x.308
1	.289x.202	.297x.250	.319x.306	.366x.330
1 1/16	.301x.213	.312x.266	.338x.326	.389x.352
1 1/8	.314x.224	.328x.281	.356x.345	.411x.375
1 3/16	.324x.234	.344x.297	.373x.364	.431x.396
1 1/4	.336x.244	.359x.312	.393x.384	.452x.417
1 5/16	.346x.254	.375x.328	.410x 403	.472x.438
1 3/8	.356x.264	.391x.344	.427x.422	.491x.458
1 7/16	.366x.273	.406x.359	.442x.440	.509x.478
1 1/2	.375x.282	.422x.375	.458x.458	.526x.496

Shakeproof Lock Washers

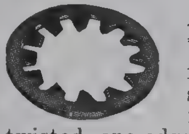
External Type—For Amer. Standard Screws, Bolts and Nuts

Made of high carbon steel, hardened and tempered; also available in 410 stainless steel, beryllium copper, phosphor bronze and K-monel in listed sizes on special order. U.S. Standard nuts, binding, truss and washer head screws.

No.	Per 1000	Screw Size In.	O.D. In.	Hole Diam., In.	Thick. In.	Approx. Wt., Lb. per 1000
1104-00	....	No. 4	.255– .245	.123– .116	.015	.092
1105-00	....	No. 5	.280– .270	.136– .129	.015	.136
1106-00	....	No. 6	.317– .306	.150– .142	.020	.233
1108-00	....	No. 8	.381– .370	.176– .168	.020	.367
1110-00	....	No. 10	.406– .395	.204– .195	.022	.380
1112-00	....	No. 12	.474– .462	.231– .221	.025	.595
1114-00	....	¼	.506– .494	.267– .256	.025	.644
1118-00	....	5/16	.601– .588	.326– .320	.030	1.08
1120-00	....	⅜	.695– .680	.398– .384	.035	1.60
1122-00	....	7/16	.760– .740	.464– .448	.035	1.64
1124-00	....	½	.898– .882	.529– .512	.040	2.68
1126-00	....	9/16	.985– .965	.594– .576	.040	3.04
1128-00	....	⅝	1.070–1.045	.663– .641	.045	4.32
1132-00	....	¾	1.260–1.240	.790– .768	.050	7.25
1134-00	....	⅞	1.410–1.380	.927– .897	.055	8.72
1136-00	....	1	1.620–1.590	1.060–1.025	.062	13.0

Shakeproof Lock Washers

Internal Type—For American Standard Screws, Bolts and Nuts



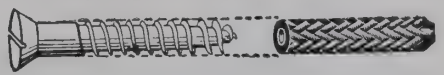
High carbon steel, hardened and tempered; also available in 410 stainless steel, beryllium copper, phosphor bronze and K-monel in listed size on special order. Also suitable for use under S.A.E. hex nuts, round and hex head screws. Each tooth is twisted, one edge up and one edge down, to give line bite, top edge biting into nut, other biting into working surface.

No.	Per 1000	Screw Size In.	O.D. In.	Hole Diam., In.	Thick. In.	Approx. Wt.,Lb. per 1000
1202–00	....	No. 2	.185– .175	.095– .089	.013	.049
1203–00	....	No. 3	.225– .215	.109– .102	.015	.081
1204–00	....	No. 4	.265– .255	.123– .116	.015	.123
1205–00	....	No. 5	.255– .245	.136– .129	.018	.118
1206–00	....	No. 6	.288– .278	.150– .142	.018	.161
1208–00	....	No. 8	.336– .325	.176– .168	.020	.255
1210–00	....	No. 10	.381– .370	.204– .195	.022	.348
1212–00	....	No. 12	.406– .394	.231– .221	.022	.411
1214–00	....	¼	.478– .466	.267– .256	.025	.633
1218–00	....	5/16	.607– .594	.332– .320	.030	1.12
1220–00	....	⅜	.692– .678	.398– .384	.035	1.67
1222–00	....	7/16	.789– .774	.463– .448	.035	2.24
1224–00	....	½	.883– .867	.529– .512	.040	3.08
1226–00	....	9/16	.974– .957	.594– .576	.040	4.50
1228–00	....	⅝	1.071–1.053	.659– .640	.045	5.02
1230–00	....	11/16	1.166–1.147	.725– .704	.045	6.18
1232–00	....	¾	1.245–1.220	.795– .769	.050	7.88
1233–00	....	13/16	1.386–1.365	.856– .832	.050	9.84
1234–00	....	⅞	1.386–1.364	.918– .894	.055	8.80
1236–00	....	1	1.637–1.613	1.043–1.019	.062	16.3
1238–00	....	1⅛	1.825–1.799	1.168–1.144	.062	20.2
1241–00	....	1 5/16	1.950–1.921	1.356–1.331	.062	19.4

SPECIAL WASHERS

Washers made to order in any size or thickness of Copper, Brass, Steel, Bronze, Aluminum, Nickel Silver, Monel or any other materials as desired.

Rawlplug Fiber Screw Anchors



Used mainly in concrete, brick, tile and any masonry materials. Works in wood, glass, rubber, metal, etc. Unaffected by moisture, temperature, etc. Small sizes can be cut with cutting pliers, larger sizes with hacksaw. Threaded portion of screw should correspond to length of Rawlplug.

For Sheet Metal and Standard Wood Screws

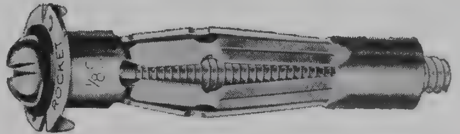
Size No.	Lgth. In.	Per 100	Rawldrill Size No.	Rawldrill Diam. In.	Drill-holder No.	Std. Pkg.	Wt. Lb. Std. Pkg.
6	⅝	**$2.70**	6	5/32	14	100	1
	¾	**2.80**	6	5/32	14	100	1
	1	**3.00**	6	5/32	14	100	1½
8	⅝	**3.10**	8	11/64	14	100	1½
	¾	**3.20**	8	11/64	14	100	1½
	1	**3.40**	8	11/64	14	100	2
	1¼	**3.60**	8	11/64	14	100	2½
	1½	**3.80**	8	11/64	14	100	2½
	2	**4.20**	8	11/64	14	100	2½
10	¾	**3.40**	10	3/16	14	100	1¾
	1	**3.80**	10	3/16	14	100	2½
	1¼	**4.20**	10	3/16	14	100	2¾
	1½	**4.60**	10	3/16	14	100	3¼
	2	**5.40**	10	3/16	14	100	3¼
12	¾	**4.20**	12	¼	14	100	2½
	1	**4.60**	12	¼	14	100	3
	1¼	**5.00**	12	¼	14	100	3¾
	1½	**5.40**	12	¼	14	100	4½
	2	**6.20**	12	¼	14	100	5½
14 or ¼″ Lag Screw	1	**5.40**	14	9/32	14	100	4½
	1¼	**6.00**	14	9/32	14	100	5½
	1½	**6.60**	14	9/32	14	100	6½
	2	**7.80**	14	9/32	14	100	8¼
16	1	**6.10**	16	5/16	20	50	2¾
	1½	**7.60**	16	5/16	20	50	4
	2	**9.10**	16	5/16	20	50	5
20 or 5/16″ Lag Screw	1	**9.00**	20	⅜	20	50	3¾
	1½	**11.00**	20	⅜	20	50	5¼
	2	**13.00**	20	⅜	20	50	6½
22	2	**13.00**	20	⅜	20	50	9¼

For Lag Screws

Uses No. 20 drillholder. Packed 25 in a box, 12 boxes per standard package.

Size In.	Lgth. In.	Per 100	Rawl-drill Size In.	Approx. Wt., Lb. per Std. Pkg.	Size In.	Lght. In.	Per 100	Rawl-drill Size In.	Approx. Wt.,Lb. per Std. Pkg.
⅜	1½	**$19.00**	7/16	3½	**7/16**	3	**$29.00**	½	7½
	2	**20.00**	7/16	4½	**½**	2	**32.00**	⅝	7½
	2½	**21.00**	7/16	5½		2½	**33.00**	⅝	8½
	3	**22.00**	7/16	6½		3	**34.00**	⅝	10
7/16	1½	**26.00**	½	4½	**⅝**	2½	**38.00**	¾	11
	2	**27.00**	½	4¾		3	**39.00**	¾	13
	2½	**28.00**	½	5½		3½	**40.00**	¾	15

Rocket Wallgrips



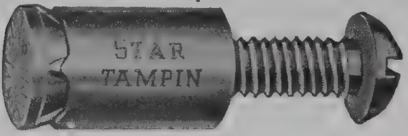
A hollow wall screw anchor. Outside wrench fits holes in collar and holds Wallgrip from turning while tightening; slips out automatically when Wallgrip is set. Ribbed wing provides a positive stop assuring permanent installation. Reliefs at knees allow expansion of wings with less screwdriver torque.

Packed in box with reinforced metal edges.

No.	Per 100	Wallgrip Size	Std. Pkg. Qty.	Std. Ship. Ctn. Qty.	Ship. Wt. Lb. per 100
2706	**$9.90**	⅛S (Short)	100	500	1¼
2707	**10.20**	⅛L (Long)	100	500	1¾
2708	**13.20**	⅛XL (Extra Long)	50	250	4
2710	**15.40**	3/16S (Short)	50	250	4
2711	**15.70**	3/16L (Long)	50	250	4½
2712	**17.60**	3/16XL (Extra Long)	25	125	5½
2715	**15.95**	¼S (Short)	50	250	5¼
2716	**16.20**	¼L (Long)	50	250	6½
2717	**19.80**	¼XL (Extra Long)	25	125	8

Star Tampin Expansion Shields

No. 4000 with Closed Bottom Nut
No. 4000J with Open Bottom Nut



No. 4000

STAR
J-TAMPIN

No. 4000J

★STAR TAMPIN

For use with machine screws or bolts. One of the most widely used types of expansion bolt. A combination of lead sleeve and rust-proof-alloy threaded metal cone. Rust-proof throughout. The lead sleeve, when set, expands into all the irregularities of the masonry.

‡No.	Per 100	*Size	Safe Work Load, Lb.	Minimum Holes Required, Inches Diam.	Depth	Std. Pkg.	Shipping Carton	Weight Pounds per 100
4006	$6.00	6–32	100	5/16	½	50	1000	1
4008	6.50	8–32	100	5/16	½	50	1000	1
4010	7.50	10–24	150	⅜	⅝	50	1000	2
4012	9.50	12–24	200	½	⅞	50	500	4½
4015	11.00	¼–20	200	½	⅞	50	500	4½
4020	15.00	5/16–18	300	⅝	1	50	250	7½
4025	20.00	⅜–16	450	¾	1¼	50	250	15
4030	26.00	7/16–14	600	⅞	1½	50	250	20½
4035	26.00	½–13	600	⅞	1½	50	250	20½
4045	50.00	⅝–11	800	1⅛	1¾	50	100	41
4055	75.00	¾–10	1000	1¼	2¼	50	100	54

*Size of bolt or screw with which shield is used.

†Use deeper hole for soft masonry.

‡For Shields with open bottom nut, suffix letter J to no.

No. 6800 Star Slugin Compounded Anchors

For Anchoring Machine Bolts in Masonry

Made of rustproof zinc alloy. Side lugs on each cone prevent turning; large enough to grip lead sleeve firmly.

STAR
SLUGIN

Plain Type 2-Unit

Plain Type—2-Unit Sets

Two-unit set consists of 2 plain cones and 2 lead sleeves.

No.	Per 100 2-Unit Sets	Bolt Size In.	Drill Size In.	Safe Load 2-Unit Set Lb.	2-Unit Sets In Std. Pkg.	Std. Ctn.	Ship. Wt. Lb. per 100 Sets
6816	$16.00	¼	½	250	100	500	4
6826	22.00	⅜	¾	600	100	500	10
6836	36.00	½	1	800	50	250	20
6846	48.00	⅝	1⅛	1450	50	100	26
6856	70.00	¾	1⅜	1600	25	50	50
6861	88.00	⅞	1½	1700	20	40	65
6866	126.00	1	1⅝	1800	20	20	78
*6871	280.00	1⅛	2	....	25	25	184
*6876	300.00	1¼	2⅛	....	25	25	228
*6886	440.00	1½	2⅜	....	25	25	296

STAR
SLUGIN

Threaded, 2-Unit

Threaded Type—2-Unit Sets

Two-unit set consists of threaded cone, plain cone, and 2 lead sleeves.

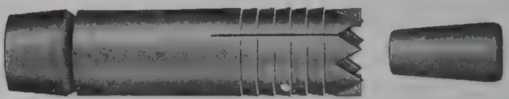
No.	Per 100 2-Unit Sets	Bolt Size In.	Drill Size In.	Safe Load 2-Unit Set Lb.	2-Unit Sets In Std. Pkg.	Std. Ctn.	Ship. Wt. Lb. per 100 Sets
6817	$16.00	¼	½	250	100	500	4
6827	22.00	⅜	¾	600	50	250	11
6837	36.00	½	1	800	50	100	27
6847	48.00	⅝	1⅛	1450	50	100	32
6857	70.00	¾	1⅜	1600	25	50	59
6862	88.00	⅞	1½	1700	25	50	83
6867	126.00	1	1⅝	1800	25	25	98
*6872	280.00	1⅛	2	....	25	25	216
*6877	300.00	1¼	2⅛	....	25	25	272
*6887	440.00	1½	2⅜	....	25	25	376

*Threaded and plain cones in these sizes are malleable iron.

NOTE: Use square head bolts on ½-in. and smaller sizes; hex. head on larger.

For each additional unit, (cone and sleeve) add one-half price of 2-unit set.

Phillips Special Flush Shells



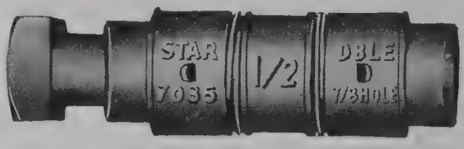
Designed and recommended for installation with powe hammers. Has a tapered chucking end for mounting oı chuck while drilling the hole and expanding the shell. After hole is drilled and shell expanded, this chucking end is broken off flush with face of stone by a quick lateral strain on the chuck, or by striking the shell a blow with hand hammer after chuck is removed. Cuttings vent through shell and chuck while drilling, permitting a full depth hole without removal for cleaning.

¼-inch packed 100 to the box; 5/16-inch, ⅜ and ½-inch packed 50 to the box; ⅝, ¾ and ⅞-inch packed 25 to the box.

Bolt Size In.	Per 100	Outside Diam. Inches	Depth in Stone Inches	Shell Chuck No.	Approx. Wt. Lb. per 100
¼	$20.30	13/32	1	1	5
5/16	23.60	15/32	1⅛	2	6
⅜	31.40	9/16	1 7/16	3	10
½	46.90	11/16	2 1/32	4	18
⅝	70.35	27/32	2 15/32	5	31
¾	107.85	1	3 9/32	6	54
⅞	145.35	1⅛	3¾	7	73

No. 7000 Star Double Expansion Shields

Malleable Iron—For Use with Machine Bolts



Locking lugs on nut and collar permit easy expansion Over-lap spring holds shield together firmly.

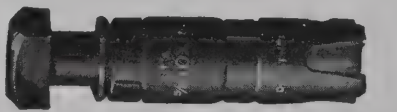
No.	Per 100 without Bolts	Diam. Bolt In.	Work. Load Lb.	Length Shield Inches	O.D. and Drill Req. Inches	Std. Pkg.	Std. Ship. Carton	Shipping Wt. Lb. per 100
*7015	$15.00	¼	200	1⅝	½	50	500	4
7020	18.00	5/16	300	1⅞	⅝	50	500	7½
*7025	25.00	⅜	450	2⅛	¾	50	250	12½
*7035	38.00	½	1000	2⅜	⅞	25	125	18
*7045	45.00	⅝	1500	2⅞	1	25	125	25½
7055	65.00	¾	2000	4	1¼	10	50	54½
7060	95.00	⅞	2000	4½	1½	5	25	103
7065	110.00	1	2000	4⅞	1⅝	5	25	120

*Zinc alloy sides, completely rustproof.

No. 3600 Star Loxin Expansion Shields

For Use with Machine Bolts

Rustproofed



Listed by Underwriters' Laboratories

When no length is specified, long standard shield will be furnished.

Long Standard Sizes

No.	Without Bolts per 100	Diam. Bolt In.	Length of Shield Inches	Outside Diameter and Drill Required Inches	Safe Wkg. Load Lb.	Std. Pkg.	Std. Shipping Carton	Ship. Wt. Lb. per 100
3615	$15.00	¼	1¼	½	200	50	500	3
*3616	15.00	¼	2½	½	200	50	500	6½
3620	18.00	5/16	2	⅝	300	50	500	7
3625	25.00	⅜	2	⅝	450	50	500	7
3630	32.00	7/16	2½	⅞	1000	25	250	16
3635	38.00	½	2½	⅞	1000	25	250	15½
3645	45.00	⅝	3	1	1500	25	125	23½
3655	65.00	¾	3½	1⅛	2000	10	100	32½

Short Standard Sizes

No.	Without Bolts per 100	Diam. Bolt In.	Length of Shield Inches	Outside Diameter and Drill Required Inches	Safe Wkg. Load Lb.	Std. Pkg.	Std. Shipping Carton	Ship. Wt. Lb. per 100
3623	$18.00	5/16	1½	⅝	200	50	500	5½
3628	25.00	⅜	1½	⅝	300	50	500	6
3638	38.00	½	2	⅞	700	25	250	13½
3648	45.00	⅝	2½	1	1000	25	125	20

*Extra long, only shipped when ordered special.

Star Gripzin Alloy Expansion Shields

For Use with Machine Bolts—3 Way Expansion

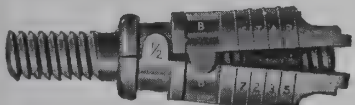
STAR
GRIPZIN
TYPE 8000

Adapts itself to shape of oversize and carelessly drilled holes. Special rustproof alloy. Tri-leg shell cast in one piece. Fits all National Standard Thread machine bolts.

	Long Standard				Short Standard
No.	8015	8020	8025	8035	8028
Without Bolts.....per 100	$15.00	18.00	25.00	38.00	25.00
Diam of Bolt...........in.	¼	5/16	⅜	½	⅜
Safe Working Load.....lb.	200	300	450	1000	350
Length of Shield........in.	1⅜	1¾	2⅜	2⅞	1¾
O.D. and Drill..........in.	½	⅝	¾	⅞	¾
No. in Std. Pkg...........	50	50	50	25	50
No. in Std. Carton........	500	500	125	125	250
Ship. Wt. per 100.......lb.	4	6½	7½	18	6½

Star Closin Malleable Bottom Bearing Expansion Shields

Machine Bolt Type



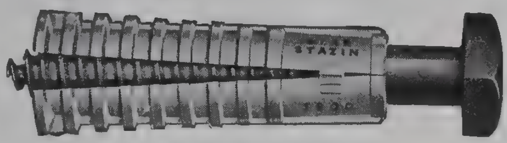
For fastening threaded rods, pipe hangers, etc.

Elliptical shaped nut gives greater range of expansion and prevents nut from turning in shield.

No.	Shield Only per 100	Diam. Bolt In.	Length Shield In.	OD. and Drill Req., In.	Safe Working Load, Lb.	Std. Pkg.	Std. Ship. Carton	Ship. Wt. Lb. per 100
7215	$15.00	¼	1⅜	½	200	50	500	4
7220	18.00	5/16	1⅝	⅝	300	50	500	7½
7225	25.00	⅜	2⅛	¾	450	50	250	13
7235	38.00	½	2½	⅞	1000	25	250	18
7245	45.00	⅝	2¾	1	1500	25	125	28
7255	65.00	¾	4	1¼	2000	10	50	57½

Star Stazin Lag Screw Expansion Shields

No. 1800



Made of a special alloy, rust-proof throughout.

Threads bear completely on root diameter of lag screw. External corrugations or ribs. End sections are reinforced.

Long

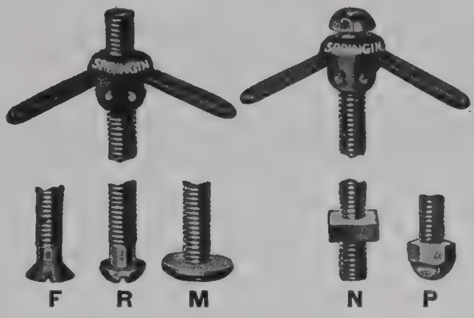
No.	Per 100 Less Bolts	Diam. Lag Screw Inches	Length Inches	O.D., In. and Drill Req.	No. in Std. Pkg.	Ship. Wt. Lb. per 100
1815	$15.00	¼	1½	½	50	5
1820	18.00	5/16	1¾	½	50	5
1825	25.00	⅜	2½	⅝	50	9½
1835	38.00	½	3	¾	25	14
1845	45.00	⅝	3½	⅞	25	22
1855	65.00	¾	3½	1	10	29

Short

1818	$15.00	¼	1	½	50	3
1823	18.00	5/16	1¼	½	50	3
1828	25.00	⅜	1¾	⅝	50	7
1838	38.00	½	2	¾	25	10½
1848	45.00	⅝	2	⅞	25	12½
1858	65.00	¾	2	1	10	16

Long shield will be furnished unless otherwise specified.

No. 5500 Star Springin Toggle Bolts



F—with flat head screw.

R—with round head screw.

M—mushroom head, furnished in ⅛-inch diameter only.

N—reverse R or F screw and add nut on any size.

P—plumbers' toggle; reverse R or F screw and add cap nut on any size. Capnuts extra.

Resilient wings are tempered spring steel with a cam action against saddle which throws them to open position.

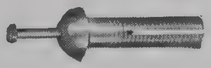
Threads are National Standard, not stove bolt threads.

With M or F Head Screws

No.	Per 100	Diameter and Length of Screw Inches	Wire Gage Threads per In.	Size Drill Required Inches	No. of Pieces in Box	No. in Shipping Carton	Ship. Wt. Lb. per 100
5506	$8.00	⅛x2	6–32	⅜	50	500	1½
5507	9.00	⅛x3	6–32	⅜	50	500	1¾
5508	10.00	⅛x4	6–32	⅜	50	500	2
With R, F, N or P Screws							
5509	$8.50	3/16x2	10–24	½	50	250	2½
5510	9.50	3/16x3	10–24	½	50	250	3
5511	10.00	3/16x4	10–24	½	50	250	3½
5512	12.00	3/16x5	10–24	½	50	250	4½
5513	12.50	3/16x6	10–24	½	50	250	4½
5515	10.50	¼x3	¼–20	⅝	50	250	5½
5516	11.00	¼x4	¼–20	⅝	50	250	6½
5517	14.00	¼x5	¼–20	⅝	50	250	7½
5518	15.50	¼x6	¼–20	⅝	50	250	9
5520	16.00	5/16x3	5/16–18	¾	25	125	8
5521	17.00	5/16x4	5/16–18	¾	25	125	10
5522	21.50	5/16x5	5/16–18	¾	25	125	11¼
5523	23.00	5/16x6	5/16–18	¾	25	125	13
5525	21.00	⅜x3	⅜–16	⅞	25	125	13
5526	23.00	⅜x4	⅜–16	⅞	25	125	15
5527	28.50	⅜x5	⅜–16	⅞	25	125	18½
5528	30.00	⅜x6	⅜–16	⅞	25	125	20
With R or N Screws							
5536	$40.50	½x4	½–13	1⅛	25	125	26
5537	52.00	½x5	½–13	1⅛	25	125	31½
5538	59.00	½x6	½–13	1⅛	25	125	36
Toggle Heads Only							
5506-H	$7.00	⅛	⅛– 6–32	⅜	..	...	½
5510-H	7.50	3/16	3/16–10–24	½	..	...	1
5515-H	8.50	¼	¼–20	⅝	..	...	2
5520-H	12.00	5/16	5/16–18	¾	..	...	3
5525-H	16.00	⅜	⅜–16	⅞	..	...	3½
5535-H	25.00	½	½–13	1⅛	..	...	4

Toggle heads only are furnished in bulk or to order.

Minerallac Pin Bolts

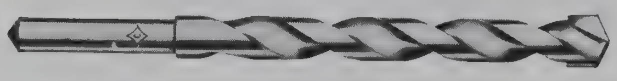


An expansion fastener for anchoring in concrete, brick, hollow tile, steel or wood. Zinc plated.

Diam. In.	Lgth. In.	Drill Size In.	Per 100	Pkd. in Boxes of	Approx. Ship. Wt. Lb. per 100
¼	¾	¼	$5.60	100	1¼
¼	1	¼	6.40	100	1½
¼	1¼	¼	7.20	100	1¾
¼	1¼	¼	8.00	50	2¼
¼	1¾	¼	10.40	50	2½
¼	2	¼	11.20	50	2¾

No. 750 Cleveland Spiral Fluted Masonry Drills

Carbide Tipped—*High Speed* Steel Body



For use in drill presses or portable electric drills at the slowest speed available. Tip diameter is larger than the nominal size to provide clearance for installation of toggle bolts, anchor screws and expansion shields.

Nom. Diam. In.	Actual Diam. In.	Lgth. O-A In.	Shank—Inches Diam.	Shank—Inches Lgth.	Each	Nom. Diam. In.	Actual Diam. In.	Lgth. O-A In.	Shank—Inches Diam.	Shank—Inches Lgth.	Each
⅛	.130	2½	⅛	...	**$1.35**	⅝	.650	6	½	1⅝	**$2.47**
3/16	.198	3	3/16	...	**1.35**	11/16	.713	6	½	1⅝	**2.81**
¼	.260	4	¼	...	**1.35**	¾	.775	6	½	1⅝	**3.15**
5/16	.328	4	¼	1¼	**1.46**	⅞	.905	6	½	1⅝	**3.82**
⅜	.390	4	¼	1¼	**1.60**	1	1.030	6	½	1⅝	**5.40**
*7/16	.458	6	¼	1⅝	**1.80**	1⅛	1.160	6	½	1⅝	**6.52**
*7/16	.458	6	⅜	1⅝	**1.80**	1¼	1.285	10	½	1⅝	**7.87**
*½	.525	6	¼	1⅝	**2.02**	1⅜	1.410	10	½	1⅝	**8.77**
*½	.525	6	⅜	1⅝	**2.02**	1½	1.533	10	½	1⅝	**9.67**
9/16	.587	6	7/16	1⅝	**2.25**	.....	.....	..	..	...	.....

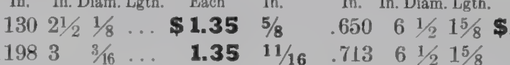
No.	Per Set	Drills, Inches
754	**$6.43**	¼, 5/16, ⅜, ½,
755	**10.25**	3/16, ¼, 5/16, ⅜, †½, ⅝
756	**12.05**	¼, 5/16, ⅜, †½, ⅝, ¾

*When ordering, specify shank size.

†Furnished with ⅜-inch diameter shank.

No. 800 Hargrave Star Drills

For Brick and Soft Concrete

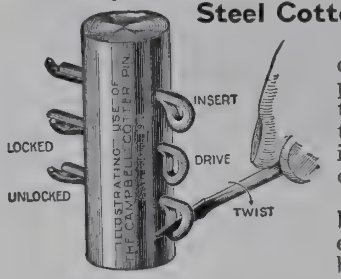


Made from high-grade special analysis steel. Forged out under a trip hammer. Carefully tempered. Load tested.

The 8 and 12-inch lengths are packed as follows: ¼ to ⅝ inch inclusive, 12 in a box; 11/16 to 1 inch inclusive, 6 in a box; all other sizes packed in bulk.

Size Inches	8 Inches Long Each	8 Inches Long Wt., Lb. per Doz.	12 Inches Long Each	12 Inches Long Wt., Lb. per Doz.	18 Inches Long Each	18 Inches Long Wt., Lb. per Doz.	24 Inches Long Each	24 Inches Long Wt., Lb. per Doz.
¼	$.56	¾	$.66	1¼	....	....	....	....
5/16	.56	1½	.66	2¼	....	....	....	....
⅜	.58	2¼	.66	3¼	....	....	....	....
7/16	.58	2¼	.66	3¼	....	....	....	....
½	.66	3	.70	4	$.86	7	....	....
9/16	....	...	.80	6½	....	....	....	....
⅝	.76	4¼	.80	6½	1.14	9½	....	....
11/16	....	...	.94	8¼	....	....	....	....
¾	.86	5½	.94	8¼	1.16	12¼	$1.44	16½
⅞	....	...	1.24	13	1.32	19¼	1.60	25½
1	....	...	1.30	18½	1.74	27½	2.14	36
1⅛	....	...	1.84	18½	2.04	27½	....	....
1¼	....	...	2.10	24	2.50	35½	3.34	50¼
1⅜	....	...	....	....	3.08	36½	....	....
1½	....	...	....	....	4.00	48	5.34	64
1¾	....	...	....	....	6.66	74½	7.34	96

Campbell Hammerlock Self-Spreading Steel Cotter Pins



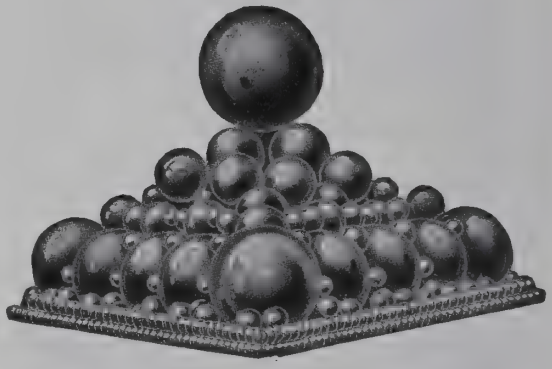
Easy to insert, points are close together and well tapered. Easy to lock because the ends are designed so that the pin will lock rigidly in place when the head is driven with a hammer.

Pin can be easily removed by inserting a flat tool in the eye and twisting the eye back to its original shape.

Lgth. In.	Per 1000—Diameter, Inches 3/64	1/16	3/32	7/64	⅛	5/32	3/16	¼	5/16	⅜
¼	$1.15	....	....	....	....	....	....	....	....	....
½	1.15	$1.15	$1.60	....	$2.15	....	....	....	....	....
¾	1.45	1.45	2.00	$2.80	2.80	$4.60	$6.50	....	....	....
1	1.80	1.80	2.25	3.50	3.50	5.50	7.80	$12.15	$19.15	....
1¼	....	2.15	2.80	4.15	4.15	6.65	9.10	14.40	22.30	....
1½	....	2.50	3.25	4.85	4.85	7.55	10.40	16.65	25.45	$37.15
1¾	....	2.80	3.70	....	5.50	8.55	11.70	18.80	28.45	.....
2	....	3.15	4.00	....	6.20	9.45	13.00	21.00	31.50	44.55
2¼	....	....	....	....	....	10.35	14.40	23.30	34.65	.....
2½	....	....	5.40	....	7.55	11.35	15.80	25.45	37.70	52.00
3	....	....	....	....	8.90	13.30	18.00	29.95	43.90	59.40
3½	....	....	....	....	....	.....	20.50	34.45	50.00	66.85
4	....	....	....	....	....	.....	23.00	38.95	56.25	74.25

Also made in brass. Prices on request.

Standard Grade Steel Balls



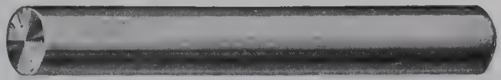
Standard Grade Steel Balls are made from a special grade of high carbon chrome alloy steel and have an accuracy of plus or minus .0002 inch.

Diam. In.	Per 1000	Diam. In.	Per 1000	Diam. In.	Per 1000	Diam. In.	Per 1000
1/16	$7.50	9/16	$55.00	1⅛	$440.00	2¼	$3400.00
3/32	6.50	19/32	63.00	1 3/16	530.00	2⅜	3900.00
⅛	4.00	⅝	72.00	1¼	630.00	2½	4500.00
5/32	4.50	21/32	81.00	1 5/16	740.00	2⅝	5900.00
3/16	5.00	11/16	95.00	1⅜	860.00	2¾	6800.00
7/32	6.00	23/32	120.00	1 7/16	980.00	2⅞	7100.00
¼	8.00	¾	135.00	1½	1100.00	3	7500.00
9/32	10.00	25/32	148.00	1 9/16	1250.00	3¼	8800.00
5/16	12.00	13/16	160.00	1⅝	1400.00	3½	10800.00
11/32	15.00	27/32	176.00	1 11/16	1550.00	3¾	13600.00
⅜	19.00	⅞	192.00	1¾	1700.00	4	18000.00
13/32	23.00	29/32	205.00	1 13/16	1850.00	4¼	22000.00
7/16	28.00	15/16	220.00	1⅞	2050.00	4½	28800.00
15/32	34.00	31/32	240.00	1 15/16	2250.00	...	....
½	40.00	1	270.00	2	2450.00	...	....
17/32	47.00	1 1/16	355.00	2⅛	2900.00	...	....

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

Ground Dowel Pins



Made of alloy steel, heat treated and hardened.

All sizes listed are standard in .0002 oversize; .001 tolerance also standard in sizes designated by asterisk (*). Unless otherwise specified the .0002 oversize will be furnished. All other sizes and lengths are non-standard; prices on application.

When ordering, specify diameter, whether Type A or Type B packaging is desired.

⅛-Inch Diameter

Length Overall Inches	Per 100	Qty. per Std. Pkg. Type A	Qty. per Std. Pkg. Type B
*⅜	$5.00	100	20
*½	5.10	100	20
*⅝	5.20	100	20
*¾	5.40	100	20
⅞	5.70	100	20
*1	6.00	100	20
*1¼	6.60	100	20
*1½	7.30	100	20
*1¾	8.00	100	20
2	8.70	100	20

3/16-Inch Diameter

*½	$5.50	100	20
*⅝	5.65	100	20
*¾	5.85	100	20
⅞	6.15	100	20
*1	6.45	100	20
*1¼	7.10	100	20
*1½	7.90	100	20
*1¾	8.70	100	20
*2	9.50	100	20

¼-Inch Diameter

*½	$6.10	100	20
*⅝	6.25	100	20
*¾	6.50	100	20
⅞	6.80	100	20
*1	7.10	100	20
*1¼	7.85	100	20
*1½	8.75	100	20
*1¾	9.70	100	20
*2	10.75	100	20
2¼	12.00	50	20
*2½	13.50	50	20

5/16-Inch Diameter

*½	$6.85	100	20
⅝	7.05	100	20
*¾	7.35	100	20
⅞	7.65	100	20
*1	7.95	100	20
*1¼	8.90	100	20
*1½	9.90	100	20
*1¾	11.00	100	20
*2	12.25	100	20
*2¼	13.50	50	20
*2½	15.00	50	20
*3	18.00	50	20

⅜-Inch Diameter

½	$7.75	100	20
⅝	8.05	100	20
*¾	8.35	100	20
⅞	8.65	100	20
*1	8.95	100	20
*1¼	10.00	100	20
*1½	11.25	100	20
*1¾	12.50	100	20
*2	13.75	100	20
*2¼	15.25	50	20
*2½	16.75	50	20
*3	19.75	50	20

7/16-Inch Diameter

Length Overall Inches	Per 100	Qty. per Std. Pkg. Type A	Qty. per Std. Pkg. Type B
*1	$12.90	100	20
1¼	14.05	100	20
*1½	15.40	100	20
1¾	16.75	100	20
*2	18.00	100	20
*2½	21.50	50	20
*3	25.00	50	20

½-Inch Diameter

¾	$15.10	100	20
*1	16.30	100	20
*1¼	17.50	100	20
*1½	18.70	100	20
*1¾	20.00	25	20
*2	21.50	25	20
*2¼	23.30	25	20
*2½	25.50	25	20
*3	30.50	25	20
*3½	36.20	25	20
*4	42.00	25	20

⅝-Inch Diameter

1	$21.90	25	10
1¼	23.80	25	10
1½	25.70	25	10
1¾	27.75	25	10
*2	30.00	25	10
2¼	32.50	25	10
*2½	35.00	25	10
*3	42.00	25	10
*3½	49.00	25	10
*4	56.00	25	10
4½	64.00	25	10
5	74.00	25	10

¾-Inch Diameter

*2	$52.00	25	10
*2½	49.00	25	10
*3	60.00	25	10
*3½	72.00	25	10
*4	84.00	25	10
4½	96.00	25	10
5	108.00	25	10
6	132.00	25	10

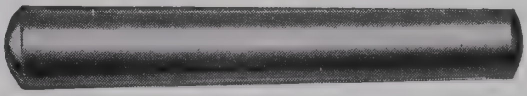
⅞-Inch Diameter

2	$62.00	25	10
2½	70.00	25	10
3	78.00	25	10
3½	90.00	25	10
4	104.00	25	10
4½	118.00	25	10
5	132.00	25	10
6	160.00	25	10

1-Inch Diameter

2	$82.00	25	10
2½	90.00	25	10
3	100.00	25	10
3½	116.00	25	10
4	134.00	25	10
4½	152.00	25	10
5	170.00	25	10
6	206.00	25	10

Standard Steel Specialty Milled Taper Pins



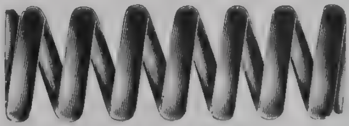
Taper ¼ inch to the foot. If ordering sizes other than those included in the list, specify the length and the size at the large end. Sizes smaller than No. 0 take No. 0 list price.

Per 100

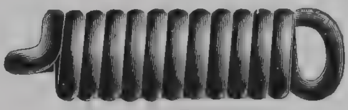
	Diameter at Large End, Inches					
	.156	.172	.193	.219	.250	.289
	Approximate Fractional Size, Inches					
	5/32	11/64	3/16	7/32	¼	19/64
Length Inches	No.					
	0	1	2	3	4	5
¾	$1.80	$2.00	$2.20	$2.40	$2.70	$3.00
1	2.10	2.30	2.50	2.70	3.00	3.30
1¼	2.40	2.60	2.80	3.00	3.30	3.60
1½	2.70	2.90	3.10	3.30	3.60	3.90
1¾	3.00	3.20	3.40	3.60	3.90	4.20
2	3.30	3.50	3.70	3.90	4.20	4.50
2¼	3.70	3.90	4.10	4.30	4.60	4.90
2½	4.10	4.30	4.50	4.70	5.00	5.30
2¾	4.50	4.70	4.90	5.10	5.40	5.70
3	4.90	5.10	5.30	5.50	5.80	6.10
3¼	....	....	5.70	5.90	6.20	6.50
3½	....	....	6.10	6.30	6.60	6.90
3¾	....	....	....	....	7.00	7.30
4	....	....	....	....	7.40	7.70

	Diameter at Large End, Inches				
	.341	.409	.492	.591	.706
	Approximate Fractional Size, Inches				
	11/32	13/32	½	19/32	23/32
Length Inches	No.				
	6	7	8	9	10
¾	$3.50	.....	.....	.....	.....
1	4.00	$6.50	$7.60	$10.80	$14.40
1¼	4.50	7.00	8.30	11.70	15.30
1½	5.00	7.50	9.00	12.60	16.20
1¾	5.50	8.00	9.70	13.50	17.10
2	6.00	8.50	10.40	14.40	18.20
2¼	6.50	9.40	11.40	15.60	19.70
2½	7.00	10.30	12.40	16.80	21.20
2¾	7.50	11.20	13.40	18.00	22.70
3	8.00	12.10	14.40	19.20	24.20
3¼	8.50	13.00	15.40	20.40	25.90
3½	9.00	13.90	16.40	21.60	27.60
3¾	9.50	14.80	17.40	22.80	29.30
4	10.00	15.70	18.40	24.00	31.00
4¼	10.60	16.70	19.60	25.40	33.00
4½	11.20	17.70	20.80	26.80	35.00
4¾	11.80	18.70	22.00	28.20	37.00
5	12.40	19.70	23.20	29.60	39.00
5½	13.60	21.70	25.60	32.40	43.00
6	14.80	23.70	28.00	35.20	47.00

Coil Springs



Open or Compression



Closed or Extension

Made of oil tempered steel spring wire. Brass spring wire deteriorates with exposure to the atmosphere, and the coppered spring wire is uncertain as to quality.

Springs are made of wire that is approximately ⅛ of the outside diameter of the spring.

Prices upon application.

Malin's Steel Music Wire

ONE QUARTER POUND
"MALIN'S"
GUARANTEED
BEST QUALITY SPRING STEEL
MUSIC WIRE
Specially Made For Mechanical Purposes
Established 1900
The Malin & Co.
2514 Vestry Ave., CLEVELAND, OHIO
MALIN'S

Malin's Music Wire is specially made for mechanical purposes only; has a tensile strength of about 170 tons per square inch of section and is extremely tough.

For use wherever an extra high tempered wire of great tensile strength and toughness is required.

Wire No. 9/0 to 0 furnished on spools. No. 1 to 36 furnished in ¼, ½, 1, 2 and 5-pound coils or catch weight coils. No. 37 to 3/16 inch furnished in 1, 2 and 5-pound coils or catch weight coils. Size 13/64 to 23/64 inch furnished in 5-pound coils or catch weight coils.

Music Wire Gage No.	Per Pound	Diam. In.	No. of Feet Per Pound
9/0	.....	.002	93000
8/0	.....	.0025	60000
7/0	.....	.003	39000
6/0	.....	.004	23433
5/0	.....	.005	14997
4/0	.....	.006	10415
3/0	.....	.007	7652
2/0	$12.00	.008	5858
0	9.00	.009	4629
1	7.50	.010	3749
2	6.00	.011	2936
3	5.00	.012	2604
4	4.00	.013	2218
5	3.50	.014	1913
6	3.00	.016	1465
7	2.75	.018	1157
8	2.50	.020	937
9	2.25	.022	775
10	2.00	.024	651
11	1.80	.026	560
12	1.80	.029	447
13	1.60	.031	391
14	1.60	.033	344
15	1.60	.035	305
16	1.40	.037	274
17	1.40	.039	247
18	1.40	.041	223
19	1.20	.043	203
20	1.20	.045	185
21	1.20	.047	170
22	1.20	.049	156
23	1.20	.051	144
24	1.20	.055	124
25	$1.20	.059	108
26	1.20	.063	94
27	1.20	.067	83
28	1.20	.071	74
29	1.20	.975	68
30	1.20	.080	58
31	1.20	.083	54
32	1.20	.086	51
33	1.20	.091	46
34	1.20	.094	43
35	1.20	.098	39
36	1.20	.102	36
37	1.20	.106	34
38	1.20	.110	32
39	1.20	.114	29
40	1.20	.118	27
1/8"	1.20	.125	24
9/64"	1.20	.1406	20
5/32"	1.20	.1562	16
11/64"	1.20	.1718	12
3/16"	1.20	.1875	10
13/64"	1.20	.2031	9
7/32"	1.20	.2187	8
15/64"	1.20	.2343	6¾
1/4"	1.20	.250	5½
17/64"	1.20	.2656	5
9/32"	1.20	.2812	4¾
19/64"	1.20	.2968	4¼
5/16"	1.20	.3125	4
21/64"	1.20	.3281	3½
11/32"	1.20	.3437	3⅛

Stove Pipe Wire

In 50-foot coils. Packed one dozen coils in a box and 20 boxes in a case.

Furnished lacquered, annealed, rust-proof enameled, galvanized and coppered in 18, 19 and 20 W & M gauge.

Prices upon application.

Weights per Square Foot of Sheet Brass and Copper

Thickness Inches	Thickness Decimal Equivalent	Weight Pounds Per Square Foot Brass	Weight Pounds Per Square Foot Copper
1/16	.0625	2.754	2.89
1/8	.125	5.508	5.79
3/16	.1875	8.262	8.68
1/4	.250	11.02	11.58
5/16	.3125	13.77	14.47
3/8	.375	16.52	17.36
7/16	.4375	19.28	20.25
...	.....	.....	....

Precision Brand Solid Shim Stock

PRECISION BRAND
SHIM STOCK
PRECISION BRAND
SHIM STOCK
BRASS

Furnished in handy dispenser carton for toolroom use where a few inches or a few feet may be sheared as needed while remainder is restocked for future requirements. Each carton contains a single roll.

Stainless Steel 6x50 Inches

No.	Each	Thickness Inches
L-1	$6.80	.001
L-2	5.90	.002
L-3	5.60	.003
L-5	5.00	.005
L-6	5.20	.006
L-8	5.40	.008
L-10	5.60	.010
L-12	5.90	.012
L-15	6.60	.015
L-20	8.00	.020
L-25	9.40	.025
L-31	10.70	.031

Steel 6x100 Inches

No.	Each	Thickness Inches
A-1	$4.40	.001
A-1X	3.50	.0015
A-2	2.40	.002
A-2X	2.40	.0025
A-3	2.40	.003
A-3X	2.40	.0035
A-4	2.40	.004
A-5	2.40	.005
A-6	2.50	.006
A-7	2.50	.007
A-8	2.60	.008
A-9	$2.70	.009
A-10	2.80	.010
A-12	2.80	.012
A-13X	2.80	.0135
A-15	2.90	.015
A-16X	2.90	.0165
A-18	3.00	.018
A-20	3.10	.020
A-22	3.20	.022
A-25	3.40	.025
A-31	3.80	.031

Brass 6x100 Inches

No.	Each	Thickness Inches
S-1	$2.75	.001
S-1X	2.75	.0015
S-2	2.90	.002
S-3	2.90	.003
S-4	3.00	.004
S-5	3.10	.005
S-6	3.20	.006
S-7	3.30	.007
S-8	3.40	.008
S-9	3.80	.009
S-10	4.00	.010
S-12	4.70	.012
S-15	5.70	.015
S-20	6.70	.020
S-25	8.10	.025
S-31	9.80	.031

Steel 12x120 Inches

No.	Each	Thickness Inches
AA-1X	$6.60	.0015
AA-2	4.80	.002
AA-3	4.80	.003
AA-4	4.80	.004
AA-5	4.90	.005
AA-6	5.10	.006
AA-7	5.20	.007
AA-8	5.30	.008
AA-9	5.40	.009
AA-10	5.50	.010
AA-12	5.70	.012
AA-15	6.10	.015
AA-18	6.60	.018
AA-20	6.80	.020
AA-25	7.50	.025
AA-31	8.50	.031

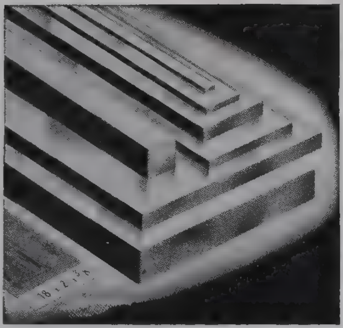
Brass Rods

Size Inches	Wt., Lb. per Foot Round	Wt., Lb. per Foot Square	Wt., Lb. per Foot Hexagon
3/32	.0254	*	*
1/8	.0452	.0576	*
5/32	.0706	*	*
3/16	.102	.130	.112
7/32	.138	*	*
1/4	.181	.230	.199
9/32	.229	*	*
5/16	.283	.360	.312
11/32	.342	*	*
3/8	.407	.518	.449
13/32	.478	*	*
7/16	.554	.705	.611
15/32	.636	*	*
1/2	.723	.921	.798
9/16	.915	1.17	1.01
5/8	1.13	1.44	1.25
11/16	1.37	*	1.51
3/4	1.63	2.07	1.80
13/16	1.91	*	2.11
7/8	2.22	2.82	2.44
15/16	2.54	*	2.80
1	2.89	3.68	3.19
1 1/16	3.27	*	*
1 1/8	3.66	4.66	4.04
1 3/16	4.08	*	4.50
1 1/4	4.52	5.76	4.98
1 5/16	4.98	*	*
1 3/8	5.47	6.97	6.03
1 1/2	6.51	8.29	7.18
1 5/8	7.64	*	8.42
1 3/4	8.86	11.3	9.77
1 7/8	10.2	*	11.2
2	11.6	14.7	12.8
.....	.....	.....	.....

*Not-stock sizes. Roman Bronze and Naval Brass, less 1%.

Simonds Red Streak Oil Hardening Flat Ground Die Steel

Flat Ground Stock



Made of oil hardening molybdenum type die steel.

Uniformly annealed for good machinability and consistently uniform hardenability with a minimum of shrinkage or warping.

Precision ground to plus or minus .001 inch with a smooth finish of 25 to 30 micro inches for accurate layout work.

Edges and ends are square parallel and accurate to dimension.

Each piece is packaged separately with proper heat treating instructions.

Furnished in 18 and 36-inch length bars as listed below.

Length, 18 Inches—Per Bar

Width In.	Thickness, Inches											
	1/64	1/32	3/64	1/16	5/64 & 3/32	7/64 & ⅛	9/64 & 5/32	11/64 & 3/16	13/64 & 7/32	15/64 & ¼	9/32 & 5/16	13/32 & 7/16
½	$1.67	$1.20	$1.20	$.85	$1.15	$1.25	$1.40	$1.65	$1.73	$1.85	$2.45	$3.05
¾	1.75	1.20	1.20	.90	1.25	1.45	1.50	1.80	1.96	2.10	2.67	3.30
1	1.75	1.25	1.20	1.05	1.45	1.55	1.75	1.95	2.10	2.35	3.00	3.55
1¼	1.90	1.44	1.32	1.20	1.61	1.75	1.96	2.15	2.36	2.78	3.28	3.80
1½	2.10	1.65	1.50	1.45	1.75	1.85	2.15	2.45	2.65	2.95	3.55	4.00
2	2.55	2.05	1.95	1.80	2.05	2.15	2.75	2.95	3.25	3.55	4.20	4.75
2½	3.00	2.45	2.40	2.15	2.35	2.45	3.35	3.35	3.70	4.25	5.10	5.75
3	3.60	2.95	2.85	2.65	2.75	2.95	3.95	3.90	4.30	5.10	6.00	6.90
3½	4.20	3.40	3.28	3.15	3.30	3.40	4.20	4.55	5.12	5.95	6.90	7.83
4	4.85	4.00	3.70	3.70	3.85	3.95	4.55	5.20	5.95	6.90	7.85	8.80
4½	....	5.00	4.54	4.31	4.60	4.72	5.35	6.04	6.96	7.82	9.09	10.35
5	....	6.00	5.40	4.85	5.40	5.50	6.44	6.90	7.82	8.75	10.30	11.90
5½	....	6.90	6.38	5.87	6.38	6.67	6.96	7.82	8.80	9.72	11.10	12.54
6	....	7.85	7.40	6.90	7.40	7.80	8.28	8.80	9.78	10.70	11.85	13.15
7	....	....	....	....	....	....	....	....	....	.....	13.92	15.30
8	....	11.27	10.81	9.89	10.81	11.21	11.67	12.54	13.00	13.40	15.18	17.60
10	....	14.26	13.69	12.94	13.69	14.20	14.61	15.47	16.56	16.62	19.78	21.74
12	....	.....	.....	.....	.....	17.14	17.71	18.57	20.30	19.78	22.08	25.19
14	....	.....	.....	.....	.....	19.44	19.78	20.64	21.39	22.08	25.19	28.69

Width In.	Thickness, Inches										
	15/32	½	9/16 & ⅝	11/16 & ¾	13/16 & ⅞	1	1⅛	1¼	1⅜	1½	1⅝
½	$3.53	....	....	....	....	....	....	.....	.....	.....	.....
¾	4.25	$4.25	$5.00	....	....	....	....	.....	.....	.....	.....
1	5.15	5.15	5.65	$6.05	$6.21	....	....	.....	.....	.....	.....
1¼	5.69	5.69	6.50	7.13	7.36	$8.63	....	.....	.....	.....	.....
1½	5.90	5.90	7.36	8.19	8.45	8.67	$9.60	$10.58	$10.87	.....	$11.62
2	6.55	6.55	8.75	10.20	10.58	11.01	11.90	12.80	13.11	$17.37	14.32
2½	7.65	7.65	10.35	12.02	12.88	13.69	14.43	15.42	16.16	19.87	17.54
3	8.70	8.70	12.05	13.90	15.12	16.39	17.25	18.06	20.24	22.43	24.61
3½	9.78	9.78	13.51	16.22	17.54	18.80	19.78	20.70	23.46	26.16	28.92
4	10.85	10.85	15.00	18.55	19.84	21.17	22.25	23.32	26.62	29.90	33.18
4½	12.94	12.94	17.14	20.70	22.20	23.69	24.84	25.99	29.44	32.89	36.34
5	15.00	15.00	19.20	22.85	24.50	26.20	27.43	28.65	32.26	35.88	39.50
5½	16.16	16.16	20.59	23.92	26.34	28.69	30.02	31.28	35.94	39.62	43.82
6	17.35	17.35	22.05	24.95	28.06	31.15	32.55	33.90	38.64	43.36	48.08
7	19.44	19.44	25.19	27.14	32.95	36.00	37.09	39.27	43.59	49.34	55.09
8	21.51	21.51	28.06	30.02	38.01	40.85	42.72	44.55	49.91	55.32	60.72
10	26.68	26.68	32.89	37.26	44.16	48.62	51.82	55.02	64.86	74.75	84.64
12	30.36	30.36	38.18	44.74	53.48	58.88	62.50	67.74	77.86	89.47	96.77
14	36.69	36.69	43.24	51.58	63.65	68.89	72.05	75.29	89.01	102.24	108.85

Length, 36 Inches—Per Bar

Width In.	Thickness, Inches									
	½	9/16 & ⅝	11/16 & ¾	13/16 & ⅞	1	1⅛	1¼	1⅜	1½	1⅝
2	$13.10	$17.50	$20.40	$21.16	$22.02	$23.80	$25.60	$26.22	$34.74	$28.64
2½	15.30	20.70	24.04	25.76	27.38	28.86	30.84	32.32	33.70	35.08
3	17.40	24.10	27.80	30.24	32.78	34.50	36.12	40.48	44.86	49.22
3½	19.56	27.02	32.44	35.08	37.60	39.56	41.40	46.92	52.32	57.84
4	21.70	30.00	37.10	39.68	42.34	44.50	46.64	53.24	59.80	66.36
4½	25.88	34.28	41.40	44.40	47.38	49.68	51.98	58.88	65.78	72.68
5	30.00	38.40	45.70	49.00	52.40	54.86	57.30	64.52	71.76	79.00
5½	32.32	41.18	47.84	52.68	57.38	60.04	62.56	70.88	79.24	87.64
6	34.70	44.10	49.90	56.12	62.30	65.10	67.80	77.28	86.72	96.16
7	38.88	50.38	54.28	65.90	72.00	74.18	78.54	87.18	98.68	110.18
8	43.02	56.12	60.04	76.02	81.70	85.44	89.10	99.82	110.64	121.44
10	53.36	65.78	74.52	88.32	97.24	103.64	110.04	129.72	149.50	169.28

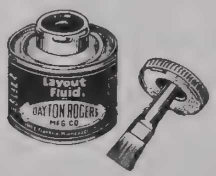
Dukane Drill Rods

Round—Carbon 1.00

Water hardening. Standard sizes. Polished. Furnished in 3-foot lengths. Other sizes, special lengths and finishes made to order. Intermediate sizes take the next higher price.

Size In.	Size Dec. Equiv.	Per Lb.	Wt. Lb. per Ft.	Size In.	Size Dec. Equiv.	Per Lb.	Wt. Lb. per Ft.	Size In.	Size Dec. Equiv.	Per Lb.	Wt. Lb. per Ft.	Size In.	Size Dec. Equiv.	Per Lb.	Wt. Lb. per Ft.	Size In.	Size Dec. Equiv.	Per Lb.	Wt. Lb. per Ft.
2	2.000	$.83	10.68	55/64	.8593	$.83	1.970	25/64	.3906	$.89	.407	A	.234	$1.03	.147	9/64	.1406	$1.64	.052
1 15/16	1.9375	.83	10.02	27/32	.8437	.83	1.896	W	.386	.89	.400	1	.227	1.09	.138	28	.139	1.84	.052
1 7/8	1.875	.83	9.38	53/64	.8281	.83	1.828	V	.377	.89	.383	2	.219	1.09	.129	29	.134	1.84	.048
1 13/16	1.8125	.83	8.77	13/16	.8125	.83	1.750	3/8	.375	.89	.375	7/32	.2187	1.09	.129	30	.127	1.84	.043
1 3/4	1.750	.83	8.17	51/64	.7968	.83	1.708	U	.368	.89	.362	3	.212	1.15	.121	1/8	.125	1.84	.042
1 11/16	1.6875	.83	7.60	25/32	.7812	.83	1.625	23/64	.3593	.89	.344	4	.207	1.15	.115	31	.120	2.04	.039
1 5/8	1.625	.83	7.05	49/64	.7656	.83	1.562	T	.358	.89	.342	5	.204	1.15	.109	32	.115	2.04	.036
1 9/16	1.5625	.83	6.52	3/4	.750	.83	1.500	S	.348	.89	.325	13/64	.2031	1.15	.109	33	.112	2.04	.034
1 1/2	1.500	.83	6.000	47/64	.7343	.83	1.438	11/32	.3437	.89	.313	6	.201	1.22	.107	34	.110	2.04	.032
1 15/32	1.4687	.83	5.753	23/32	.7187	.83	1.375	R	.339	.89	.308	7	.199	1.22	.106	7/64	.1093	2.04	.031
1 7/16	1.4375	.83	5.512	45/64	.7031	.83	1.312	Q	.332	.89	.294	8	.197	1.22	.104	35	.108	2.25	.031
1 13/32	1.4062	.83	5.274	11/16	.6875	.83	1.250	21/64	.3281	.89	.287	9	.194	1.22	.099	36	.106	2.25	.030
1 3/8	1.375	.83	5.049	43/64	.6718	.83	1.187	P	.323	.89	.277	10	.191	1.22	.096	37	.103	2.25	.029
1 11/32	1.3437	.83	4.815	21/32	.6562	.83	1.145	O	.316	.89	.271	11	.188	1.22	.094	38	.101	2.25	.028
1 5/16	1.3125	.83	4.600	41/64	.6406	.83	1.104	5/16	.3125	.89	.260	3/16	.1875	1.22	.094	39	.099	2.25	.026
1 9/32	1.2812	.83	4.374	5/8	.625	.83	1.042	N	.302	.95	.242	12	.185	1.36	.092	40	.097	2.25	.025
1 1/4	1.250	.83	4.167	39/64	.6093	.83	1.000	19/64	.2968	.95	.234	13	.182	1.36	.089	41	.095	2.25	.024
1 7/32	1.2187	.83	3.966	19/32	.5937	.83	.937	M	.295	.95	.233	14	.180	1.36	.087	3/32	.0937	2.48	.023
1 3/16	1.1875	.83	3.771	37/64	.5781	.83	.891	L	.290	.95	.225	15	.178	1.36	.085	42	.092	2.48	.023
1 5/32	1.1562	.83	3.565	9/16	.5625	.83	.844	9/32	.2812	.95	.213	16	.175	1.36	.082	43	.088	2.48	.021
1 1/8	1.125	.83	3.375	35/64	.5468	.83	.797	K	.281	.95	.212	17	.172	1.36	.079	44	.085	2.48	.019
1 3/32	1.0937	.83	3.194	17/32	.5312	.83	.750	J	.277	.95	.205	11/64	.1718	1.50	.078	45	.081	2.48	.018
1 1/16	1.0625	.83	3.010	33/64	.5156	.83	.709	I	.272	.95	.198	18	.168	1.50	.076	46	.079	2.48	.017
1 1/32	1.0312	.83	2.833	1/2	.500	.83	.667	H	.266	.95	.188	19	.164	1.50	.072	5/64	.0781	2.48	.017
1	1.000	.83	2.666	31/64	.4843	.89	.625	17/64	.2656	.95	.187	20	.161	1.50	.069	47	.077	3.18	.016
63/64	.9843	.83	2.583	15/32	.4687	.89	.583	G	.261	.95	.181	21	.157	1.50	.066	48	.075	3.18	.015
31/32	.9687	.83	2.531	29/64	.4531	.89	.542	F	.257	.95	.174	5/32	.1562	1.50	.066	49	.072	3.18	.014
61/64	.9531	.83	2.416	7/16	.4375	.89	.510	E	.250	.95	.167	22	.155	1.64	.065	50	.069	3.18	.013
15/16	.9375	.83	2.333	27/64	.4218	.89	.472	1/4	.250	.95	.167	23	.153	1.64	.063	51	.066	3.18	.012
59/64	.9218	.83	2 262	Z	.413	.89	.458	D	.246	1.03	.161	24	.151	1.64	.061	52	.063	3.18	.011
29/32	.9062	.83	2.188	13/32	.4062	.89	.437	C	.242	1.03	.154	25	.148	1.64	.059	1/16	.0625	3.18	.010
57/64	.8906	.83	2.118	Y	.404	.89	.427	B	.238	1.03	.150	26	.146	1.64	.057	...	.....	....	....
7/8	.875	.83	2 042	X	.397	.89	.421	15/64	.2343	1.03	.147	27	.143	1.64	.055	...	.....	....	....

Dayton Rogers Layout Fluid



For use in preparing tool and die blank surfaces for layout.

Packed 1 in a carton.

Size Container	4-Oz.	1-Pt.	1-Qt.	1-Gal.	4-Gal.
Each	$.65	.95	1.40	3.95	14.75
Shipping Weight ....pounds	9/16	1 3/4	3	11	42

No. 107 Dykem Hi-Spot Blue

Non-Drying—Non-Hardening

DYKEM
HI-SPOT
BLUE

A soft, uniform paste, intensely blue, that spreads easily and evenly, and transfers clearly from master surface gage.

For locating high spots when scraping bearing surfaces.

It remains in condition on the work indefinitely

Most valuable for scraping on flat bearing surfaces of lathes, planers, milling machines, etc.

Half-Size Tubes, 1/2x2 Inches	each	$.40
Single-Size Tubes, 1/2x4 Inches	each	.55
Double-Size Tubes, 3/4x4 Inches	each	.80

Dykem Steel Blue Layout Fluid

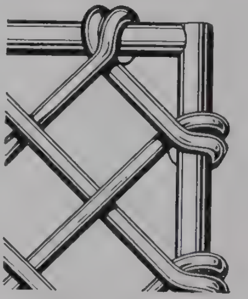
DYKEM
STEEL BLUE

Eliminates metal glare in scribing layout while making dies and templates.

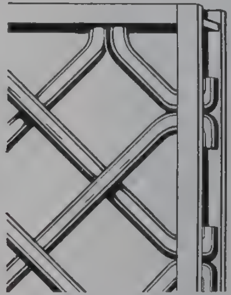
The blue background absorbs, and does not reflect white light rays. Only the scribed lines show up in sharp relief.

Size Can	4-Oz.	8-Oz.	1-Pt.	1-Qt.	1-Gal.
Per Can	$.70	1.00	1.65	2.50	8.80
Ship. Wt. ....lb.	1/2	1	2	3	9

Logan Woven Wire Window Guards



No. 6, Round Frame



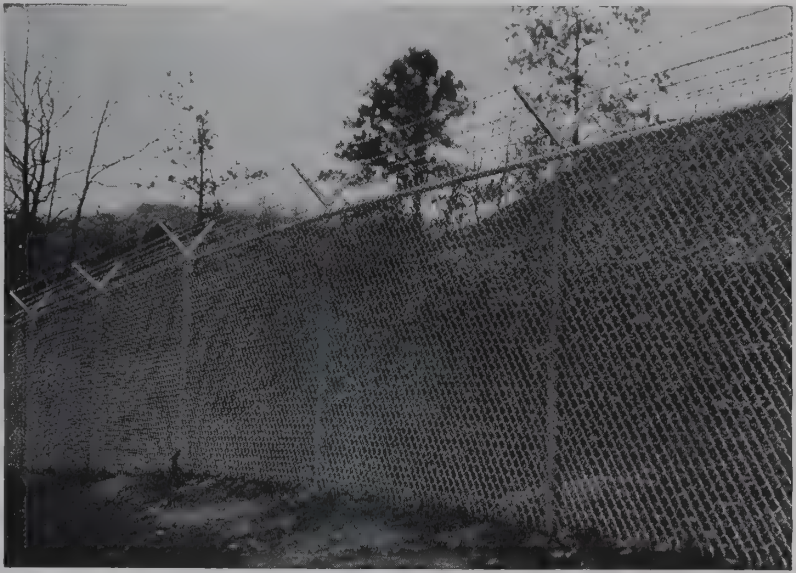
No. 12, Channel Frame

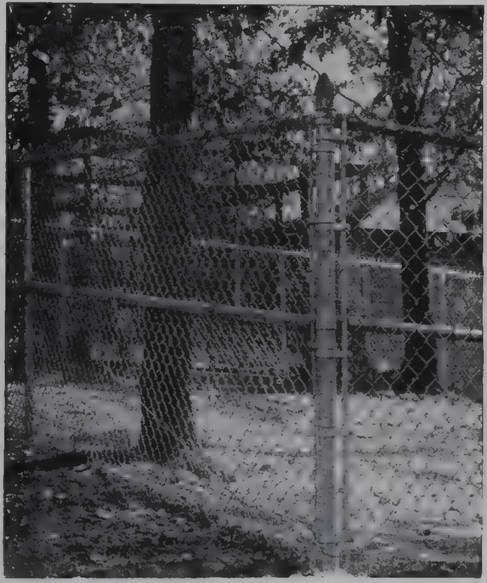
Recommended 1½-inch mesh No. 10 wire. Guards either green or black. When measuring for stationary guards, give overall size of guard. For hinged guards give size of opening, and specify as such. Round frames furnished complete with staples. Shipping weight, 1½ pounds per square foot. Channel frames furnished complete with drive screws. Shipping weight, 2 pounds per square foot.

No. Wire	13	12	11	10	8	6
Mesh......lb.	1	1 1/4	1 1/2	1 1/2	2	2 1/2
3/8-In. Round Frame per sq. ft.	..	...	...	...	..	...
7/8-In. Channel Frame.......per sq. ft.	..	...	...	...	..	...

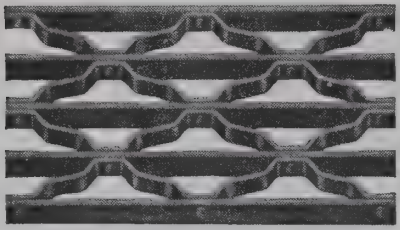
Chain Link Fence

Detailed information about these and the other types of Chain Link Fence that we can furnish will be supplied upon request. In asking for prices, please tell us the height and type to be considered and send us a sketch showing the shape and measurements of the property to be enclosed, where the openings are to be and the width of each.





Irving Subway Grating

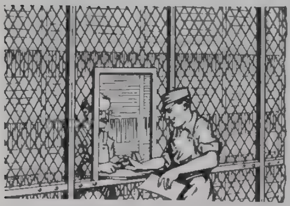


This grating is riveted for security and trussed for strength. Has no joints. Continuous in all directions.

Has maximum foot contact and maximum wheel contact.

Prices upon application.

Logan Stock Size Wire Partitions



Wire Partition

Standard partition construction with standard size steel channel frames and standard wire, woven in standard size mesh.

Panels are 5 feet wide and available in 7, 8, 9 and 10 foot heights. They are interchangeable and easy to erect or disassemble and rearrange.

Panels permit free circulation of air, light and heat. They give full visibility and are fireproof. Ideal for shop separations and to protect materials and tools.

Smith Standard Wire Partitions

This enclosure is used for stockroom, toolroom and warehouse.

Available in standard width of 5 feet; four standard heights, 7, 8, 9 and 10 feet.

Panels of the same standard heights are built identical with bolt holes punched in the steel channel frames alike, rendering them completely interchangeable. Partitions can be rearranged any time. Additional panels to match can be added to accommodate changing requirements. Panels are furnished with capping rails, heavy floor sockets, bolts and shells.

Specify whether wood or concrete floor.

Panel Size........feet	5x7	5x8	5x9	5x10
Each........	....	....	....	....

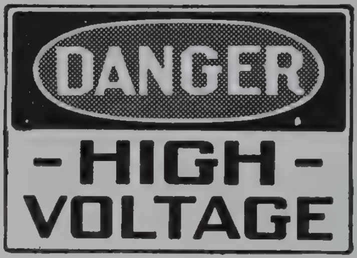
Accessories

Swinging Doors, 3 Feet Wide x 6½ Feet High, With Transom Panels to Conform with Height of Partition........each	....
Sliding Doors, 5 Feet Wide x 6½ Feet High, With Transom Panels to Conform with Height of Partition........each	....
1⅜-In. O.D. Tubular Corner Posts to Match Height of Panels........each	.....
1x1x⅛-Inch Angle Corner Posts to Match Height of Panels........each	.....
Comb. Wicket and Shelf, 1′8″ Wide x 1′ High....each	.....

Stonehouse Signs

Made of Sign-ite, a non-metallic material, which makes an excellent sign; strong, rigid and for long service. Processed the same as on steel. Lustrous baked flexible enamel finish.

Danger Signs

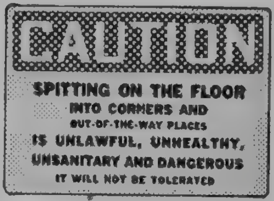


The standard danger design consists of the word DANGER in white letters on a red oval in a black panel. The sign wording is in black on a white background.

Many different wordings are available.

Size........inches	7x10	10x14	14x20	20x28
Each........	$1.21	1.76	2.80	6.16

Caution Signs

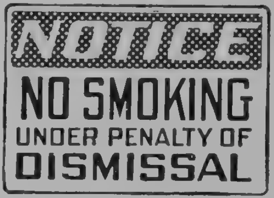


The standard caution design consists of the word CAUTION in yellow letters on a black panel. The sign wording is in black on a yellow background.

Many different wordings are available.

Size........inches	7x10	10x14
Each........	$1.04	1.43

Notice Signs



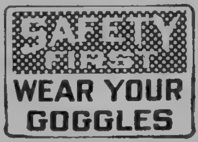
The standard notice design consists of the word NOTICE in white letters on a blue panel. The wording is in black on a white background.

Size, 10x14 inches.

Many different wordings are available.

10x14-Inch Size........each	$1.76

Safety First Signs



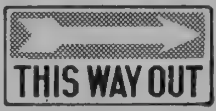
The safety first design consists of the words SAFETY FIRST in white letters on a green panel. The sign wording is in black on a white background.

Size, 7x10 inches.

Many different wordings are available.

7x10-Inch Size........each	$1.21

Arrow Signs



The standard arrow design consists of a white arrow in a black panel. The sign wording is in black on a white background.

Size, 6½x14 inches.

Many different wordings are available.

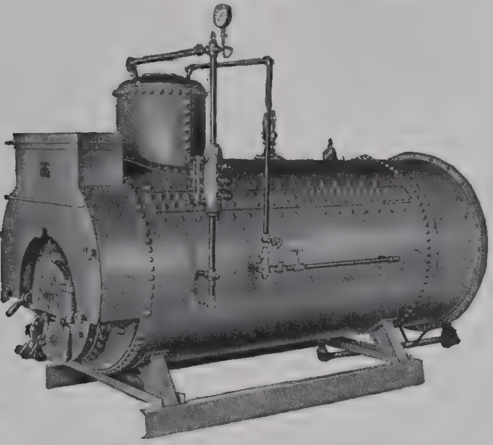
6½x14-Inch Size........each	$1.15

Signs With Special Wordings Made to Order

Lookout Scotch Marine Boilers

With Internal Water Circulating Duct

For 100 Pounds Steam Working Pressure



Front and Right Side View—Showing Boiler with Castings, Fittings and Skids

Designed, constructed and inspected to comply with A.S.M.E Boiler Construction Code.

Each boiler is filled with water and subjected to a hydrostatic pressure of 1½ times the designed working pressure. All parts and joints of boiler made watertight under test.

Regular equipment furnished with boiler, for coal firing, consists of: boiler mounted on steel skids; refractory lined rear combustion chamber with removable back plate and cleanout door; smokebox with hinged flue door, handhole plates, bolts, arches and gaskets, and with sizes 30, 40 and 50 manhole cover bolts, arches and gasket; water column with necessary pipe and fittings for connecting to boiler, shaking grate assembly consisting of—cast iron furnace door, firing door having automatic safety latch, firing door liner, combination draft and ash door with ratchet bar handle, firing door pocket, front bearing bar, shaking grate bars, rear bearing bar, ashpit partition and bridge wall support; injector assembly complete with necessary pipe, fittings and valves for connecting to boiler; fittings consisting of steam safety valve, steam pressure gauge with cock and syphon, inspector's steam gauge test cock, water gauge connections and glass, compression gauge cocks, bottom blowoff cock with piping.

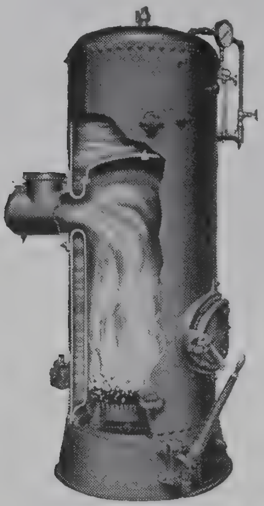
Size Boiler	**6**	**10**	**12**	**15**	**20**	**25**	**30**	**40**	**50**
Steam Working Pressure....p.s.i.	100	100	100	100	100	100	100	100	100
Diameter Shell....inches	36	40	40	44	46	48	52	56	60
Thickness Shell....inches	1/4	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8
Thickness Tube Sheets....inches	13/32	13/32	13/32	1/2	1/2	1/2	1/2	1/2	1/2
Diameter Furnace, Fire Side....inches	19 3/8	22 1/4	22 3/16	24 1/8	25 1/16	26 1/16	27	29	28 15/16
Length Furnace....inches	42	60	72	75	84	84	84	90	96
Thickness Furnace....inches	5/16	3/8	13/32	7/16	15/32	15/32	1/2	1/2	17/32
Diameter Tubes....inches	3	3	3	3	3	3	3	3	3
Length Tubes....inches	42	60	72	75	84	84	84	90	96
Thickness Tubes....b.w.g.	12	12	12	12	12	12	12	12	12
No. of Tubes....	14	16	16	20	24	32	40	50	60
Diameter Dome....inches	16	16	16	20	20	20	23 1/2	23 1/2	23 1/2
Thickness Dome Shell....inches	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Thickness Dome Head....inches	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Steam Opening....inches	1	1 1/4	1 1/4	1 1/2	2	2	2	3	3
Pop Valve Opening....inches	3/4	1	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2 1/2
Feed Water Opening....inches	1/2	1/2	3/4	3/4	3/4	3/4	1	1	1
Injector Steam Opening....inches	1/2	1/2	3/4	3/4	3/4	3/4	1	1	1
Blow-Off Opening....inches	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Water Column Opening....inches	1	1	1	1	1	1	1	1	1
Length, Grate Surface....inches	18	30	36	42	48	48	48	54	54
Width, Grate Surface....inches	19	22	22	24	25	26	27	26	28
Area, Grate Surface....square feet	2.4	4.6	5.5	7.0	8.3	8.7	9.0	10.6	10.6
Area, Water Heating Surface....square feet	60	97	115	144	185	231	278	361	450
‡Water Volume....gallons	94	154	189	232	269	300	359	450	577
Water Line, Floor to Bottom of Water Glass....inches	39 5/8	42 3/4	42 3/4	44 3/4	46 1/2	50	53	59	61 3/4
Stack Connection Ht. Above Floor....inches	49	53	53	57	59	61 1/2	65 1/2	73 1/2	75 1/2
Rectangular Uptake Opening, Size Outside....inches	7 1/2x22	8 1/2x24	8 1/2x24	8 1/2x27	9 1/2x28	10 1/2x30	11 1/2x32	12 1/2x34	13 1/2x39
Diameter Stack....inches	12	14	14	14	16	18	20	22	24
Stack Length Recommended....feet	25	25	25	25	30	30	30	40	40
Thickness Stack Material....b.w.g.	16	16	16	16	16	16	16	16	16
*Width Boiler....inches	40	44	44	48	50	52	56	60	64
†Height Boiler....inches	64	68	68	74	76	78	86	92	96
*Length Boiler....inches	77	96	108	111	121	122	126	133	140
Shipping Weight Complete....pounds	3300	4700	5100	5800	6700	7300	8400	9700	11000

*Size overall. †Floor line to top of dome.

Prices and further information upon application.

Lookout Vertical Tubeless Boilers

For 100 Pounds Working Pressure



Recommended for service in localities where the feed water contains elements which would cause the quick corrosion of the tubes of the standard type vertical boilers; also where the feed water contains elements which would form a scale and be deposited on the tubes of the standard type vertical boilers, also for intermittent operation.

Designed for a safe working pressure of 100 pounds, and tested and made tight under a hydrostatic pressure of 150 pounds.

The shell is vertical, inside of which is a vertical furnace. The space between the shell and furnace is filled with water when the boiler is in operation. The smoke from the fire passes out through the opening in the rear of boiler near the top of the furnace.

The fire door opening is formed by flanging the shell and furnace plates together and welding them by the autogenous process.

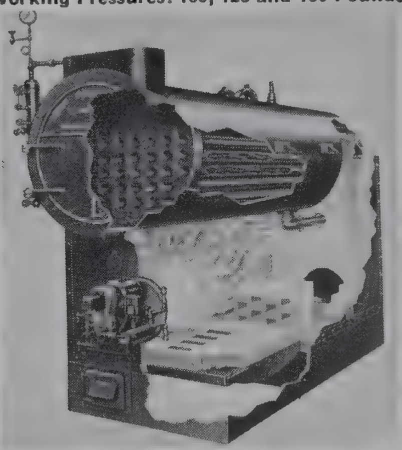
Regular Equipment Furnished Consists of: Cast iron fire door frame, door and liner, with automatic self-latching counter-weighted safety catch; cast iron or shell extended base with ash door; lever operated locomotive type shaking grates; handhole plates with bolts, arches, and gaskets; steam gauge with syphon and cock; gauge cocks; water gauge and glass; blow off cock and nipple; pop safety valve; cock for inspector's test gauge; smoke outlet elbow with damper; and injector fitted with the necessary piping, globe, and check valves.

Boilers up to 36 inches diameter inclusive are equipped with cast iron base; 42 inches in diameter and larger have shell extended to form ash pit.

Size Boiler	Each	Diam. Boiler Shell Inches	Diam. Furnace In.	Ht. Furnace In.	Height Bare Boiler Inches	Steam Open. Pipe Size Inches	Size Firedoor Open. In.	Water Cap. at Middle of Water Glass Gallons	Approx. Ship. Wt. Lbs. Compl.
1½	.....	20	16	25	41	1	7x11	17	650
3	.....	24	20	36	55	1	7x11	30	925
5	.....	24	20	44	65	1	7x11	36	1050
6½	.....	24	20	48	69	1	7x11	38	1100
8	.....	30	24	48	70	1¼	11x15	69	1500
10	.....	30	24	56	78	1¼	11x15	77	1700
12	.....	36	30	48	73	1½	11x15	92	2100
15	.....	36	30	66	91	1½	11x15	113	2450
20	.....	42	36	66	96	2	11x15	136	3400
25	.....	42	36	84	120	2	11x15	162	4000

Dutton Economist Portable Steam Boilers

Horizontal—With Special Seamless Steel Tubes
For Coal, Oil or Gas Firing
A.S.M.E. Code Construction
Working Pressures: 100, 125 and 150 Pounds



A horizontal return tubular boiler, set in a fully portable insulated and refractory steel casing with rocking grates and bridgewall built in, assembled as a unit on skids, ready for operation.

Oversize full length refractory lined high fire box and combustion chamber. Tubes are removed from the intense flame and heat of firebox.

High temperature refractory lined walls produce an incandescent fire box. The reinforced steel casing is lined with heat resisting insulation of calcined diatmaceous silica combined with asbestos.

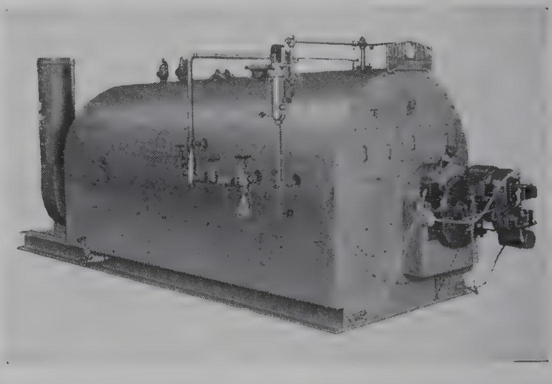
Available in two types: hand fired, 15 to 75 hp.; mechanically fired, 20 to 105 hp.

Furnished regularly in 6 sizes from 15 to 75 horsepower. Boilers built for higher working pressures when desired.

Further Information, Specifications and Prices upon Request

Dutton Econotherm Steam Generators

Automatic—Horizontal—With Induced Draft Systems
For Gas or Oil Firing
Steam Capacity, 700 to 14,750 Pounds per Hour at 212°F.



Suitable for a wide variety of applications in power, processing, and heating. Especially designed for maximum heat output with minimum flue output.

Three-pass, induced draft system provides quick steaming, uniform circulation, and good quality of dry steam at all ratings without variations in pressure or changes in water level. Temperature of water at bottom of boiler is same as at top or sides. When taking a full head of steam off boiler, there is no surging or up and down action in water gauge, indicating good circulation, steady steaming.

All-welded; no rivets, x-ray inspected.

Has electric ignition for either gas or oil firing.

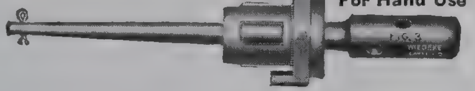
Although boiler operates smokelessly, a small vent pipe is required to carry gases from boiler room—no high or large diameter stack is necessary.

Sizes; 20, 25, 30, 40, 50, 70, 80, 100, 125, 150, 180, 200, 300, 350 and 400 hp.

Further Information, Specifications, and Prices upon Request

No. 3 Wiedeke Dayton Roller Tube Expanders

For Hand Use



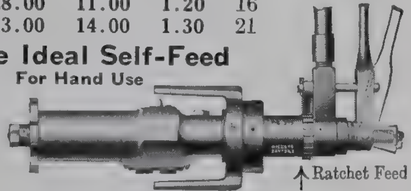
Designed for occasional use. The mandrel and rolls are tool steel and hardened. The frame and rear collar is one piece, impossible to lose collar. Guard can be removed.

When ordering select largest size expander that enters your I.D. tubes, see list.

Size of Expander for O.D. Tubes In.	Enters I.D. Tubes and Expands to Inches	Expander Comp. Each	Ex. Mandrels Each	Ex. Rolls Each	Approx. Ship.Wt. Expander Lb.
1	25/32 to 29/32	$12.00	$5.50	$.50	2
1¼	1 to 1 5/32	12.00	5.50	.50	2
1½	1 7/32 to 1 7/16	12.00	5.50	.50	2
1¾	1½ to 1¾	12.00	5.50	.50	4
2	1 23/32 to 2	12.00	5.50	.50	6
2¼	1 15/16 to 2¼	14.00	6.00	.80	6
2½	2 5/32 to 2½	17.00	9.50	.80	8
2¾	2 13/32 to 2¾	22.00	10.50	.90	9
3	2⅝ to 3	22.00	10.50	.90	11
3¼	2⅞ to 3¼	28.00	11.00	1.20	14
3½	3⅛ to 3½	28.00	11.00	1.20	16
4	3 9/16 to 4	33.00	14.00	1.30	21

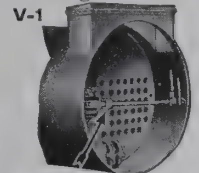
No. 375 Wiedeke Ideal Self-Feed Tube Cutters

For Hand Use

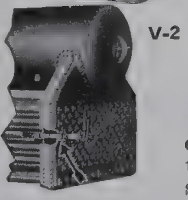


Cuts off new or old tubes uniformly with a flare or bevel ready to bead or weld. Avoids cracking tubes.

V-1

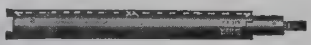


V-2



Size of Tube Cutter for O.D. Tubes, In.	Enters and Cuts Tubes I.D. In.	Tube Cutter Comp. Each	Extra Cutters Each	Extra Cutters Per Doz.	Approx. Ship. Wt. Tube Cutter Lb.
2	1 23/32	$80.00	$2.00	$12.00	18
2¼	1 31/32	85.00	2.00	12.00	19
2½	2 7/32	85.00	2.00	12.00	20
2¾	2 15/32	85.00	2.00	12.00	22
3	2 11/16	110.00	2.00	12.00	29
3¼	2⅞	115.00	2.00	12.00	30
3½	3⅛	115.00	2.00	12.00	32
4	3⅝	120.00	2.00	12.00	33

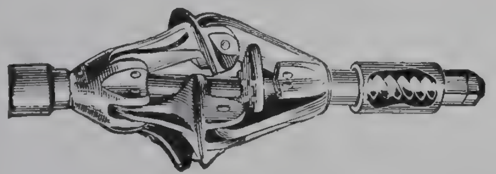
No. 377 Extensions



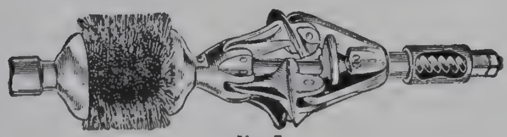
Connect extension to reach in smoke box (V-1) or through water leg (V-2).

No. D-1½ fits tube cutters 2″ to 2¾″, length 19″, wt. 9 lb.	$8.00
No. E-1½ fits tube cutters 3″ to 4″, length 19″, wt. 12 lb.	8.00

Worcester Ingalls Type Boiler Tube Cleaners



No. 4



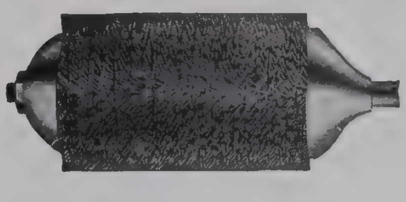
No. 5

A strong, reliable cleaner which adjusts itself to conform to the inside diameter of the tube. Scrapes and brushes the tube at the same operation. Made to fit all standard tubes from 2 to 5 inches.

No. 4, Cleaner Only	per diameter inch	$2.00
No. 5, Cleaner with Brush	per diameter inch	2.50

Sizes under 3 inches take the 3 inch price.

No. 6 Worcester Flue Brushes

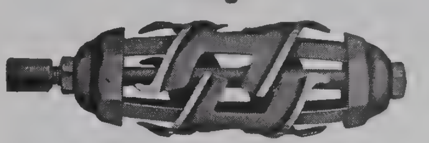


Treated with paint, making the brush rust proof.

Sizes, 1½ to 6 inches. The 1½ to 3 inch same price as 3 inch.

Per in...... ....

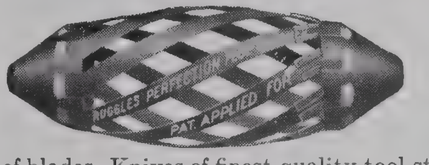
Chicago Flue Cleaners



Removes scale and soot from flues; cuts both ways, and cuts under; does not ride over scale.

For Flues. inches	1½	1¾	2	2½	3	3½	4
Each	$5.00	5.00	5.00	6.25	7.50	8.75	10.00

Ruggles Perfection Flue Cleaners



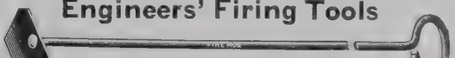
Thoroughly cleans flues, pipes, condenser tubes.

Has no screws in its construction. Spring steel clips reinforce front end of blades. Knives of finest quality tool steel. Long shearing cut gets under worst incrustations of ash and dirt.

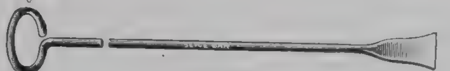
Diam. In.	Cleans	Each	Diam. In.	Cleans	Each
1	*Flue	$2.23	3	Flue	$3.35
1¼	*Flue	2.23	3¼	Flue	3.62
1½	*Flue	2.23	3½	Flue	3.90
1¾	*Flue	2.23	4	Flue	4.46
2	*Flue	2.23	1	Pipe	2.23
2¼	Flue	2.51	1¼	Pipe	2.23
2½	Flue	2.78	1½	Pipe	2.23
2¾	Flue	3.07	2	Pipe	2.51

*Or condenser tube. For special sizes, give i.d.

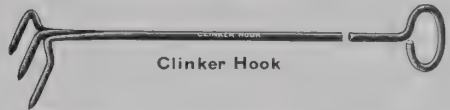
Engineers' Firing Tools



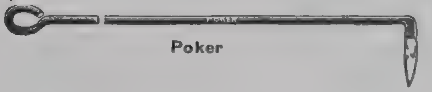
Hoe



Slice Bar



Clinker Hook

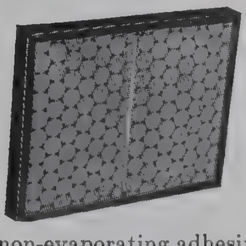


Poker

In lengths of 5, 6, 7, 8, 9, 10, 11 and 12 feet. Prices upon application.

Dust-Stop Air Filters

For Filter-Equipped Residential Warm-Air Furnaces and Air-Conditioning Systems

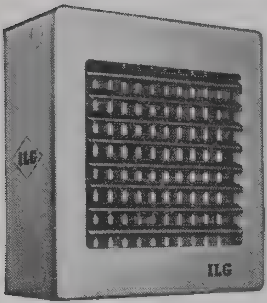


A replacement type air filter which provides an efficient method of cleaning air of dust, lint and pollen.

Constructed of packs of fibrous glass faced with metal grilles and bound on the edges with a fiberboard frame. The fibers are inorganic, chemically stable, resistant to heat and corrosive vapors and do not absorb the dust-catching, non-evaporating adhesive with which they are coated. The fibers, packed to proper density, form an effective medium for air filtration.

Standard Size......in.	20x25	20x20	16x25	16x20	15x20
2-In. Filters......each	$1.75	1.52	1.52	1.52	1.52
1-In. Filters......each	1.08	.92	.99	.99	.99

Ilg Horizontal Type Unit Heaters



For use in factories, offices, stores and homes.

Heating coil consists of two rows of round copper tubes hydraulically expanded for tight, permanent mechanical bonding to one-piece cast iron headers. End of each tube is spun over for improved steam distribution. Suitable for hot water and steam up to 150 lb. pressure; 500-lb. hydrostatic test.

Stream-flow-curved louvers for smooth control of air discharge; individually adjustable. Four-blade, quiet fan wheel with wide aluminum blades. Cabinet is 18 and 20-gage steel; finished in baked light green enamel.

No.	Single Phase 60 Cycles 115 and 230 Volts 1-Speed Each	Single Phase 60 Cycles 115 and 230 Volts 2-Speed †Each	3-Phase 220/440 Volts 60/50 Cycles Each	RPM.	*BTU. per Hour	CFM. at 70° F.	Hp.	E.D.R. Sq. Ft.	Approx. Ship. Wt. Lb.
10418	$111.00	$134.00	.....	1550	21,000	318	1/100	87	65
10423	111.00	134.00	.....	1550	23,100	385	1/100	96	68
10427	116.00	139.00	.....	1550	25,400	466	1/70	106	75
12418	140.00	166.00	.....	1550	38,400	555	1/40	160	90
12423	140.00	166.00	.....	1550	42,900	690	1/30	178	95
12427	141.00	167.00	....	1550	46,250	807	1/30	193	100
16418	187.00	218.00	$253.00	1050	68,500	919	1/40	285	110
16427	210.00	243.00	274.00	1050	82,500	1362	1/20	344	115
16433	220.00	260.00	286.00	1050	90,000	1600	1/10	375	120
21418	266.00	303.00	319.00	1050	114,500	1631	1/10	477	190
21427	306.00	349.00	336.00	1140	138,500	2420	1/10	577	200
21423E	314.00	380.00	347.00	1140	154,500	3000	1/6	645	210
24416	343.00	402.00	369.00	1140	177,000	2780	1/6	738	250
24416E	380.00	425.00	378.00	1140	194,500	3330	1/6	810	255
24420	396.00	435.00	388.00	1140	205,000	3800	1/3	855	270
24420E	418.00	446.00	398.00	1140	216,000	4350	1/3	900	270

*2 lb. steam, 60°F. entering air. †Includes switch.

Ilg Textile Type Unit Heaters

Horizontal

Especially adapted for textile industry. Number of seamless tubes has been multiplied to increase primary heating surface; lint-catching fins have been eliminated.

Suitable for hot water and steam up to 150 lb. pressure; 500-lb. hydrostatic test.

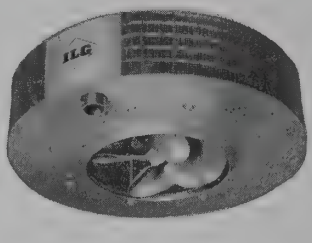
Round copper tubes, hydraulically expanded for tight, permanent mechanical bonding to one-piece cast iron headers.

Stream-flow-curved louvers for smooth control of air discharge; individually adjustable. Four-blade, quiet fan wheel with wide aluminum blades. Cabinet is 18 and 20-gage steel; finished in baked light green enamel.

No.	Single Phase 60 Cycles 115 and 230 Volts 1-Speed Each	Single Phase 60 Cycles 115 and 230 Volts 2-Speed †Each	3-Phase 220/440 Volts 60/50 Cycles Each	RPM	*BTU. per Hour	CFM. at 70° F.	Hp.	E.D.R Sq. Ft.	Approx. Ship. Wt Lb.
16418T	$226.00	$240.00	$315.00	1050	44,000	919	1/40	118	110
16427T	234.00	249.00	315.00	1050	54,000	1362	1/20	225	115
16433T	237.00	250.00	325.00	1050	58,000	1600	1/10	242	120
21418T	321.00	337.00	414.00	1050	71,800	1631	1/10	300	190
21427T	325.00	340.00	414.00	1140	90,000	2420	1/6	375	200
21423ET	374.00	430.00	414.00	1140	100,000	3000	1/6	416	210
24416T	387.00	402.00	473.00	1140	118,200	2780	1/6	494	250
24416ET	435.00	490.00	473.00	1140	126,000	3330	1/6	525	255
24420T	518.00	574.00	497.00	1140	136,000	3800	1/3	566	270
24420ET	518.00	574.00	497.00	1140	145,000	4350	1/3	605	270

*2 lb. steam, 60°F. entering air. †Includes switch.

Ilg Vertical Type Unit Heaters



Delivers a powerful, vertically downward air throw, providing excellent results in buildings with high ceilings.

Heating element consists of round copper tubes hydraulically expanded for tight, permanent mechanical bonding to aluminum fins. Tubes are brazed to one-piece cast iron headers. The end of each tube is spun over for improved steam distribution. Suitable for hot water and steam up to 150 pounds pressure. Each coil receives 500-pound hydrostatic test.

Four-blade, quiet type wheel with aluminum blades.

Totally enclosed, shaded pole, split-phase motor, continuous type, with oil lubricated bearings. Shielded from radiant heat.

Available in 12 capacity sizes. Adjustable directional vanes, diffuser cones and anemostats are optional.

Type V—For Standard Outlet Temperatures

For Steam or Hot Water

Size No.	Single Phase 60 Cycles 115 or 230 Volts 1-Speed Each	Single Phase 60 Cycles 115 or 230 Volts †2-Speed Each	3 Phase 220/440 Volts 60/50 Cycles Each	RPM.	*BTU. per Hour	‡CFM.	Hp.	§E.D.R. Sq. Ft.	Ship. Wt. Lb.
164V1	$340.00	$359.00	$352.00	1140	114,000	1500	1/12	475	115
164V2	347.00	365.00	369.00	1140	131,000	1835	⅛	546	120
164V3	375.00	394.00	408.00	1725	170,000	2820	⅓	710	135
214V1	402.00	420.00	396.00	1140	197,500	2800	¼	824	175
214V2	449.00	468.00	459.00	1140	227,000	3270	¼	945	180
214V3	495.00	514.00	524.00	1725	294,000	4670	½	1225	200
244V1	590.00	609.00	594.00	850	354,000	4730	⅓	1475	250
244V2	642.00	662.00	673.00	1140	392,000	5560	½	1630	265
244V3	.....	.....	736.00	1140	440,000	6750	1	1830	300
304V1	761.00	782.00	748.00	850	440,000	5790	⅜	1830	375
304V2	.....	.....	811.00	1140	535,000	7700	1	2225	400
304V3	.....	.....	871.00	1140	596,000	9300	1¼	2480	435

Type VL—For Low Outlet Temperatures

For Steam or Hot Water

164V1L	$274.00	$293.00	$300.00	1050	74,500	1140	1/20	310	115
164V2L	279.00	298.00	309.00	1140	88,600	1735	⅛	369	120
164V3L	274.00	293.00	303.00	1725	104,000	2820	⅓	475	135
214V1L	299.00	318.00	310.00	1050	127,000	2300	1/12	530	170
214V2L	339.00	358.00	336.00	1140	142,000	3270	¼	592	180
214V3L	373.00	392.00	363.00	1725	162,000	4670	½	675	200
244V1L	484.00	504.00	477.00	850	216,000	4730	⅓	900	250
244V2L	530.00	550.00	520.00	1140	236,000	5560	½	984	265
244V3L	.....	.....	528.00	1140	256,000	6750	1	1070	300
304V1L	563.00	584.00	553.00	850	298,000	5500	⅜	1240	375
304V2L	.....	.....	613.00	1140	318,000	7700	1	1325	400
304V3L	.....	.....	675.00	1140	344,000	9300	1¼	1430	435

*2 lb. steam, 60°F. entering air. †Includes switch.

‡CFM. is cubic feet per minute of standard air at 70°F. and standard basis of rating (2 lb. steam pressure, 60°F. entering air).

§Equivalent direct radiation at standard basis of rating.

Accessories

Cone Diffusers

For Size No.........	164V	214V	244V	304V
Each...............	$13.00	19.00	22.00	26.00

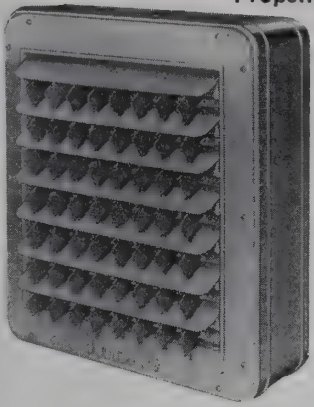
Radial Deflectors

For Size No.........	164V	214V	244V	304V
Each...............	$26.00	33.00	40.00	46.00

TRANE PRODUCTS STOCKED IN SOUTH BEND ONLY

Model H Trane Unit Heaters

Propeller Type



A compact heater for providing low-cost heating for factory, office or store.

Features

A solderless extended surface coil; quality-proved through years of dependable service.

The Trane-developed method of coil construction: a mechanical bond from fin to tube to adjacent fin—assures longer life and maximum heat transfer. Has copper tubes and aluminum fins.

Heavy semi-steel headers, carefully tested under pressure before shipping. Boiler tube bushings assure leak-free performance. This header arrangement makes Model H the only unit heater available with non-freeze coil arrangements when desired. **When ordering,** specify.

Three-piece construction. Sides, top and bottom are formed in one piece. The front panel and aerodynamically designed fan shroud fasten into place to complete the simple three-piece sheath for coil, fan and motor. This feature gives greater support to the coil and fan.

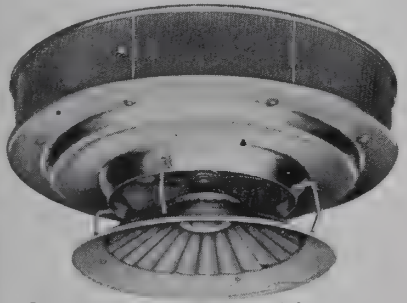
Available with completely adjustable patented Louver Fin Diffuser. Sturdy vertical blades (fins) operate independently of each other and may be adjusted without tools to provide air deflection any degree, right or left, in the horizontal plane. Standard horizontal louvers control air flow in the vertical plane, up and down.

On installations where control of horizontal spread of air is not important, Trane adjustable louvers, furnished as standard, will provide the desired results.

Prices and Further Information on Request

Model P Trane Unit Heaters

Projection Type



For unit heating, with steam or hot water, in factories, offices, etc. Because of design differences between Projection Unit Heater and conventional unit heater, results are secured which have heretofore been impractical.

Simple construction with circular coil mounted between two circular plates. Upper plate is supporting backbone of unit; lower provides orifice through which fan projects flood light beam of heated air.

Completely flexible finger tip control of air stream from a vertical discharge type unit heater is possible.

From an almost horizontal blanket of warmth spreading out in all directions, to a vertical shaft of heated air capable of 60 per cent more throw than from same unit heater without a diffuser, an endless number of diffusion patterns are obtained with patented Louver Cone Diffuser.

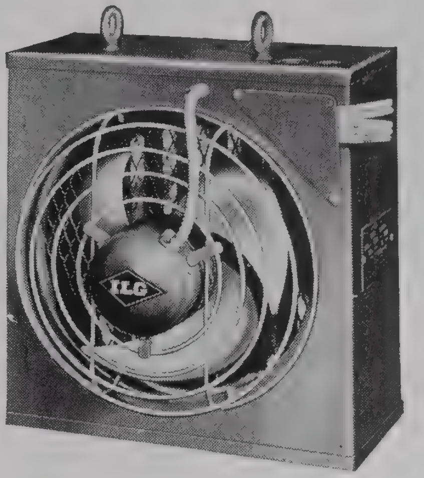
Conforms to aerodynamic principle. Rigidly mounted cone with its adjustable louvers provides complete, directly responsive control of every segment of air stream. Louver cone diffuser is a separate attachment, and is available for all sizes of the Model P Projection Heater.

Coil-heart of heating unit consists of tubes and fins mechanically bonded. Contraction and expansion cannot affect heat transfer of solderless Trane-patented bond.

The casing consists of two circular, 16-gage steel plates. The lower plate forms the orifice for the delivery of heat. Motor is mounted on hanger support angles at top of unit. Top and bottom plates with the coil between are securely fastened together forming a substantially constructed unit.

Finish. Units are furnished in baked enamel finish.

Ilg Type HT Electric Unit Heaters



For space heating or drying. Eye bolts provided for suspension of unit.

Cartridge type elements of the black-heat type are held in place by clips and new elements can be quickly inserted if necessary.

Furnished with nameplate rating, connecting diagram and leads for connecting to 115 or 230 volts, 1-phase or 230 volts, 2 or 3-phase. Units for direct current and special voltages can also be supplied at extra cost. Rpm., 1550.

Overall dimensions: width, 12⅜ in.; height, 15 in.; depth, 12¼ in. Dimensions of case only, excluding fan and hanger bolts: width, 12⅜ in.; height, 13⅛ in.; depth, 5⅞ in.; distance between eye bolts, 5½ in.

Complete unit finished in light green crinkle enamel.

Net weight, 20 pounds.

No.	110HT	210HT	310HT	410HT
Each	**$134.00**	**137.00**	**146.00**	**154.00**
Capacity ... kw.	1½	2	3	4
CFM	100	135	200	270
Capacity ... Btu.	5100	6800	10200	13600

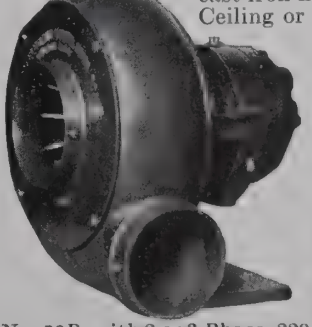
Consult one of our

HEATING ENGINEERS

For Proper Unit Heater for your

Particular Installation

Ilg Type P Volume Blowers



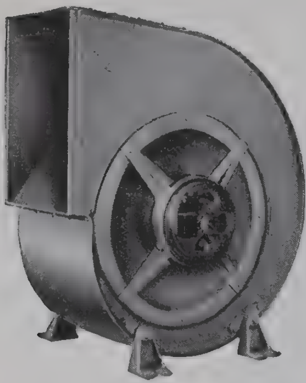
For small quantities of air. Heavy cast iron housing; cast aluminum wheel. Ceiling or wall type. Fits into any of 4 different discharges. No. 7½P at 3400 rpm. used on single-fire blacksmith forges. D.C. blower with enclosed speed regulator.

*1425 rpm. on 25 and 50 cycles.

A.C. 25 Cycles, Single Phase

Size No.	110 Volts Each	220 Volts Each	RPM.	Wt. Lb.
10P	**$168.06**	**$191.44**	1425	70
15P	**235.96**	**243.75**	1425	105
20P	**578.76**	**589.89**	1425	245

No. 20P, with 2 or 3 Phase, 220 or 440 Volt, 25 Cycle, 1425 RPM. A.C. Motor....................each **$506.42**



Ilg Type BC Centrifugal Blowers

With Backward Curved Non-Overloading Wheel

Non-overloading characteristics have been brought to a high state of development in the Ilg Type BC Blowers.

The motor load remains constant for a large range of air volume over a considerable change in static pressure.

This feature is of distinct value to the architect, the engineer, and contractor in installations where the actual resistance in the system does not agree with the calculated figure, for there is not a chance of a motor overload in case the resistance is less than calculated.

Blower has high efficiency available in direct-connected and belted single width, single inlet types and belted double width, double inlet type. The discharge is universal.

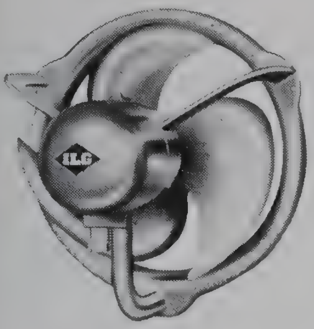
*Enclosed speed regulators furnished with direct current blowers.

		Direct Connected								Belted			
		60 Cycle A.C.					*D.C.						
		2 & 3 Phase		1 Phase						Single Width Single Inlet		Double Width Double Inlet	
Size	RPM.	220 or 440 Volts Each	550 Volts Each	110 Volts Each	220 Volts Each	Ship. Wt. Lb.	110 or 220 Volts Each	550 Volts Each	Ship. Wt. Lb.	Each	Wt. Lb.	Each	Wt. Lb.
BC25	1140	$425.17	$458.56	$461.25	$461.25	245	Prices on Request.		230	$238.18	175	....	...
BC25	1750	436.30	467.46	523.11	474.14	245			230	......	...	....	...
BC30	1140	466.35	499.74	564.29	505.30	270			310	290.49	225	....	...
BC30	1750	477.48	509.75	......	542.03	270			330	......	...	....	...
BC35	855	506.42	549.82	629.96	557.61	350			360	375.08	295	....	...
BC35	1140	522.00	563.18	664.46	579.87	320			375	......	...	....	...
BC35	1750	862.58	......	......	......	480			530	......	...	....	...
BC40	855	563.18	702.30	740.15	621.05	500			525	467.46	425	....	...
BC40	1140	753.50	795.80	......	847.00	485			580	......	...	....	...
BC40	1750	1054.01	1094.08	......	......	580			725	......	...	....	...
BC45	685	794.68	836.98	......	859.24	650			700	553.16	550	....	...
BC45	855	806.93	849.22	......	884.84	700			700	......	...	....	...
BC45	1140	978.33	....	......	....	715			880	......	...	....	...
BC50	685	991.68	1020.62	......	1079.61	830			850	668.91	725	$1234.32	925
BC50	855	1026.19	1068.48	......	1134.15	875			1000	......	...	....	...
BC50	1140	1197.59	1241.00	......	....	925			1090	......	...	....	...
BC55	570	958.29	1000.59	......	1036.20	950			1000	766.86	850	1435.77	1075
BC55	685	1035.09	1077.38	......	1158.63	950			1000	......	...	....	....
BC55	855	1064.03	1106.32	......	....	1000			1080	......	...	....	....
BC60	570	1029.53	1071.82	......	....	1200			1330	863.69	1025	1661.71	1275
BC60	685	1106.32	1148.62	......	....	1200			1420	....	....	....	....
BC60	855	1268.82	1332.26	......	....	1146			1580	....	....	....	....
BC65	570	1540.39	1601.61	......	....	1400			1750	1049.56	1200	1902.12	1500
BC65	685	1752.98	1814.19	......	....	1370			1950	....	....	....	....
BC65	855	1936.42	1995.61	......	....	1600			2250	....	....	....	....
BC70	570	1833.11	1894.33	......	....	1600			1760	1183.12	1400	2198.18	1825
BC70	685	2095.78	2160.33	......	....	1760			1920	....	....	....	....
BC70	855	2407.42	2471.97	......	....	1950			2450	....	....	....	....

Speed, Capacity and Brake Hp. at Various Pressures for 60 Cy. and D.C.—Direct Connected

		Static Pressure, Inches															
		1/4		1/2		3/4		1		1 1/4		1 1/2		1 3/4		2		2 1/2		3	
Size	RPM.	CFM.	Hp.	CFM.	Hp.	CFM.	Hp.	CFM.	Hp.	CFM.	Hp.	CFM.	Hp.	CFM.	Hp.	CFM	Hp.	CFM.	Hp.	CFM.	Hp.
BC25	1140	1170	.13	950	.13	520	.09	....	...	....	...	....	...	...	...	....	....	....	....	....	....
BC25	1750	1960	.44	1830	.45	1720	.45	1570	.45	1400	.44	1190	.41	800	.32	....	....	....	....	....	....
BC30	1140	2200	.31	1920	.31	1620	.31	1240	.29	....	....	....	....	....	....	....	....	....	....	....	....
BC30	1750	3600	1.12	3430	1.12	3250	1.12	3070	1.12	2880	1.12	2700	1.11	2500	1.11	2290	1.09	1660	1.01	....	....
BC35	855	2350	.30	1950	.30	1500	.25	....	....	....	....	....	....	....	....	....	....	....	....	....	....
BC35	1140	3400	.60	3100	.60	2800	.60	2475	.60	2150	.60	1750	.58	....	2.22	....	....	....	....	....	....
BC35	1750	5470	2.22	5300	2.22	5100	2.22	4900	2.22	4700	2.22	4500	2.22	4300	....	4080	2.22	3650	2.22	3225	2.22
BC40	855	3750	.55	3280	.55	2800	.55	2250	.55	1300	.45	....	....	....	1.25	....	....	....	....	....	....
BC40	1140	5300	1.25	4950	1.25	4600	1.25	4240	1.25	3850	1.25	3480	1.25	3100	4.52	2625	1.24	....	....	....	....
BC40	1750	8375	4.52	8160	4.52	7960	4.52	7720	4.52	7500	4.52	7260	4.52	7050	....	6800	4.52	6350	4.52	5850	4.52
BC45	685	4220	.50	3600	.50	2850	.50	1800	.46	....	....	....	....	....	....	....	....	....	....	....	....
BC45	855	5570	.98	5050	.98	4500	.98	3950	.98	3400	.98	2500	.92	....	2.31	....	....	....	....	....	....
BC45	1140	7700	2.31	7300	2.31	6000	2.31	6500	2.31	6100	2.31	5660	2.31	5250	....	4850	2.31	3900	2.31	....	....
BC50	685	6050	.85	5300	.85	4500	.85	3750	.85	2000	.70	....	....	....	1.65	....	....	....	....	....	....
BC50	855	7850	1.65	7250	1.65	6660	1.65	6100	1.65	5450	1.65	4850	1.65	4050	3.93	....	....	....	....	....	....
BC50	1140	10780	3.93	10350	3.93	9890	3.93	9450	3.93	9000	3.93	8500	3.93	8070	....	7600	3.93	6700	3.93	5650	3.93
BC55	570	6600	.82	5600	.82	4580	.82	3300	.82	....	....	....	....	....	....	....	....	....	....	....	....
BC55	685	8300	1.42	7500	1.42	6650	1.42	5800	1.42	4900	1.42	3600	1.32	....	....	....	....	....	....	....	....
BC55	855	10700	2.77	10000	2.77	9370	2.77	8700	2.77	8010	2.77	7350	2.77	6690	2.77	6000	2.77	....	....	....	....
BC60	570	8900	1.27	7750	1.27	6600	1.27	5500	1.27	3800	1.15	....	....	....	....	....	....	....	....	....	....
BC60	685	11020	2.22	10100	2.22	9200	2.22	8250	2.22	7300	2.22	6400	2.22	5100	2.10	....	....	....	....	....	....
BC60	855	14200	4.30	13500	4.30	12750	4.30	12000	4.30	11250	4.30	10500	4.30	9750	4.30	9000	4.30	7400	4.30	....	....
BC65	570	12550	2.6	11500	2.55	10300	2.50	9000	2.4	7750	2.25	5000	1.90	....	....	....	....	....	....	....	....
BC65	685	15400	4.4	14500	4.4	13600	4.4	12600	4.35	11550	4.25	10200	4.15	9250	4.00	7700	3.75	....	....	....	....
BC65	855	19700	8.75	18950	8.7	18200	8.65	17450	8.6	16650	8.55	15900	8.50	15150	8.40	14350	8.30	12600	8.05	10350	7.60
BC70	570	14700	2.85	13400	2.85	12200	2.85	10800	2.85	9500	2.85	8150	2.85	5500	2.50	....	....	....	....	....	....
BC70	675	18150	4.85	17100	4.85	16000	4.85	14900	4.85	13800	4.85	12800	4.85	11700	4.85	10600	4.85	6500	4.20	....	....
BC70	855	23180	9.55	22250	9.55	21400	9.55	20500	9.55	19650	9.55	18800	9.51	75950	9.55	17100	9.55	15300	9.55	13600	9.55

Ilg Self-Cooled Electric Propeller Fans



Constructed with patented Ilg enclosed, self-cooled motor which affords the low operating cost of the open motor with the protection of a fully enclosed motor.

Fan action draws clean air through vent pipe in the bottom of the fan from outdoors, circulates it through the motor and exhausts it.

Motor stays cool and clean and uses less power.

Ratings certified to be in accord with A.S.H. & V.E.

Constant Speed—Single Phase, 60 Cy., A.C.
Type LQ

115 Volts No.	230 Volts No.	208 Volts No.	Each	Size	RPM.	CFM.	Nom. Whl. Diam. In.	Motor Hp.	Approx. Ship. Wt. Lb.
48078	48079	.....	$38.00	63SH	2750	250	6	1/80	7
48080	48081	48082	41.00	83SH	1550	400	8	1/80	8
48090	48091	48092	49.00	103SH	1550	550	10	1/80	12
48095	48096	48097	77.00	123SH	1550	1000	12	1/20	19
*48106–7		48163	130.00	163SH	1140	1700	16	1/16	35
*48108–9		48164	183.00	183SH	1140	2600	18	1/6	80
*48110–11		48165	224.00	213SH	1140	3600	21	1/5	100
*48112–13		48166	298.00	243SH	855	4700	24	1/4	165
*48114–15		48167	447.00	303SH	685	7800	30	3/8	240
*48116–17		48168	643.00	363SH	570	11000	36	5/8	350
.....	48119	48169	827.00	423SH	490	15500	42	7/8	590
.....	48121	48170	1024.00	483SH	490	23300	48	1 3/4	765

Note: 50-cycle speeds and capacities are approximately 5/6 those shown for 60 cycles.

*Motors are dual voltage 115 and 230 volts.

Two Speed—Single Phase, 60 Cy., A.C.
Type LQ

115 Volts No.	230 Volts No.	208 Volts No.	Each	Size	RPM.	CFM.	Nom. Whl. Diam. In.	Motor Hp.	Approx. Ship. Wt. Lb.
48200	48201	48240	$171.00	163S	1140 855	1700 1280	16	1/16	45
48202	48203	48241	234.00	183S	1140 855	2600 1950	18	1/6	90
48204	28205	48242	278.00	213S	1140 855	3600 2700	21	1/5	115
48206	48207	48243	393.00	243S	855 600	4700 3300	24	1/4	165
48208	28209	28244	514.00	303S	685 500	7800 5700	30	3/8	245
48210	48211	48245	709.00	363S	570 400	11000 7550	36	5/8	340
.....	48213	48246	906.00	423S	490 380	15500 12000	42	7/8	570

Equipped with two speed switch mounted in converter box and having high, low and off positions.

A supplementary two speed remote flush mounted switch, No. 801, available at $12.00.

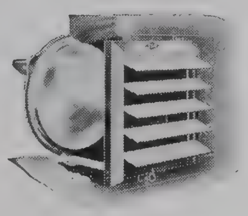
Constant Speed—3 Phase, 60 Cycles, A.C.

Sizes 183M to 483M, type Q; 60M and 72M, type W.

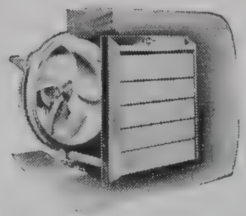
220/440 Volts No.	208 Volts No.	220/440 & 208 Volts Each	550 Volts No.	550 Volts Each	Size	RPM.	CFM.	Nom. Whl. Diam. In.	Motor Hp.	Approx. Ship. Wt. Lb.
49100-1	49200	$248.00	49102	$299.00	183M	1140	2600	18	1/6	80
49103-4	49201	278.00	49105	343.00	213M	1140	3600	21	1/5	100
49106-7	49202	320.00	49108	387.00	243M	855	4700	24	1/4	160
49109-10	49203	387.00	49111	447.00	303M	685	7800	30	3/8	240
49215-17	49204	443.00	49218	466.00	303M	855	9400	30	3/4	275
49115-16	49205	563.00	49117	645.00	363M	570	11000	36	5/8	340
49118-19	49206	748.00	49120	872.00	423M	490	15500	42	7/8	560
49121-22	49207	874.00	49123	1027.00	483M	490	23300	48	1 3/4	740
2127-28	2209	1747.00	2129	1953.00	60M	380	28400	60	2 1/2	1150
2130-31	2210	2113.00	2132	2358.00	72M	315	40500	72	3	1600

Propeller fans designed for free air delivery, not to be used with extensive duct systems, flues or pipes, or to deliver air against greater than 1/8-inch static pressure.

Ilg Automatic Shutters



Fan Running



Fan Not Running

These shutters are used on the outside of propeller fans to protect the fan when not running and also to keep out the wind, rain, snow and cold.

Ilg Automatic Shutters are built of special hard rolled aluminum leaves, pressed on Whiting Alloy copper coated rods supported in cast frame.

When fan is running, the shutter is held open by the force of the air current. When fan is shut off, the shutter closes automatically by gravity.

Shutters are moisture-proof and need no attention after they are installed.

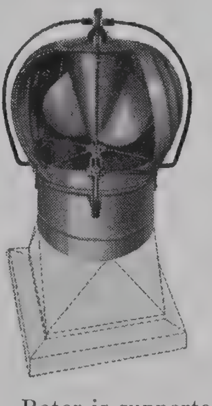
Size of shutter corresponds to size of fan.

Motor operated shutters available at extra cost.

Cat. No.	Each	Size Fan In.	Ship. Wt. Lb.	Cat. No.	Each	Size Fan In.	Ship. Wt. Lb.
638	$15.00	8	3	645	$70.00	30	50
639	18.00	10	5	646	100.00	36	82
640	19.00	12	7	647	145.00	42	140
641	22.00	16	11	648	194.00	*48	180
642	28.00	18	20	650	330.00	*60	285
643	39.00	21	25	651	369.C0	*72	375
644	46.00	24	30	...	......	..	...

*Blades are built in two sections.

Allen Coni-Vane Turbine Exhaust Stack Ventilators



A turbine type ventilator.

Sturdy construction plus exact balance of the rotor insure long life and quiet, efficient operation.

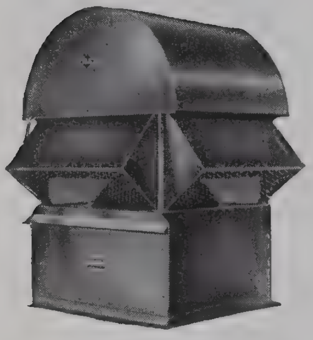
Design incorporates an interior displacement cone (shown in the cutaway illustration) to which are attached three concave surface vanes designed to assist in pulling air up the ventilator stack. The concaved surfaces have a scooping action which materially assists in diffusing the air to the rotor blade openings where it is discharged. This action is further facilitated by the interior displacement cone itself. The design as a whole streamlines the air current, reduces turbulence, and minimizes frictional loss.

Rotor is supported by exterior supporting arms of half-round steel.

Painted inside and outside with exterior paint.

Diam. Throat In.	Each	Exhaust Cu. Ft. per Hour in 4-Mile Wind	Exhaust Cu. Ft. per Hour in 8-Mile Wind	Overall Height Inches	Overall Width Inches	Ship. Wt. Lb.
10	$25.00	17,700	21,600	23½	18	26
12	30.50	25,800	30,800	25½	20	36
15	43.00	36,000	46,000	31½	24	50
18	54.00	57,000	68,000	33½	28	85
20	63.50	70,100	83,500	35½	31	100
24	87.00	99,400	123,000	43½	37	157
30	130.50	150,000	181,000	50½	46	230
36	163.00	187,000	222,000	53½	48	270
42	194.00	216,000	276,000	57½	58	455
48	235.00	240,000	315,000	61½	66	540

Type PRV Ilg Power Roof Ventilators



Contains complete fan unit and air control accessories eliminating the need of an expensive high-profile curbing and fitting of air control accessories into the roof or curbing section. Easily and quickly installed, wired and serviced.

Where standard base and accessories are not required as a unit, ventilators are available with flange base.

Has leak-proof roof hinged on two sides for inspection and assembly. May be lifted or completely removed with out the use of tools. An air shield separates the motor compartment from the air stream.

Heart of the ventilator is its Ilg self-cooled motor. Positive pressure ventilation is provided to cool the motor and motor compartment with cool, clean outside air. Suction pressure produced by the fan wheel, which is fitted with backplate fins, maintains a steady, low velocity, cooling air stream that passes through the motor compartment and motor. Located in a compartment separated from the exhaust air stream, no lint, heat, grease, fumes or dust in the exhausted air can come in contact with the motor.

Type PRV-L is provided with flanged base only, in place of standard base for application where automatic or motor-operated shutters and/or manual motor operated air volume controller are not to be factory installed in unit.

110 Volts, 1 Phase, 60 Cycles

		With Standard Base			Shutter Operation		Air Controller Operation		With Flange Base			
RPM.	Hp.	Size No.	Ventilator Each	Sprayed on Insulation Each	Gravity Each	Motor Each	Manual Each	Motor Each	Size No.	Ventilator Each	Sprayed on Insulation Each	*Approx. Ship. Wt. Lb.
855	1/15	PRV**25**	**$380.54**	**$19.72**	**$16.70**	**$72.35**	**$95.78**	**$333.42**	PRV**25**L	**$356.69**	**$9.54**	230
1140	1/6		**405.13**	**19.72**	**16.70**	**72.35**	**95.78**	**333.42**		**381.28**	**9.54**	230
1750	½		**444.09**	**19.72**	**16.70**	**72.35**	**95.78**	**333.42**		**420.34**	**9.54**	230
855	¼	PRV**30**	**500.32**	**22.42**	**22.26**	**77.91**	**102.01**	**339.66**	PRV**30**L	**472.23**	**10.60**	253
1140	⅓		**589.36**	**22.42**	**22.26**	**77.91**	**102.01**	**339.66**		**561.27**	**10.60**	253
685	⅓	PRV**35**	**571.34**	**27.72**	**28.94**	**84.59**	**110.72**	**348.36**	PRV**35**L	**537.63**	**11.66**	330
855	½		**643.31**	**27.72**	**28.94**	**84.59**	**110.72**	**348.36**		**609.61**	**11.66**	330
1140	¾		**682.27**	**27.72**	**28.94**	**84.59**	**110.72**	**348.36**		**648.56**	**11.66**	330
685	⅓	PRV**40**	**683.70**	**33.07**	**40.07**	**95.72**	**123.16**	**360.80**	PRV**40**L	**639.18**	**12.72**	440
855	½		**780.21**	**33.07**	**40.07**	**95.72**	**123.16**	**360.80**		**735.69**	**12.72**	440
570	½	PRV**45**	**778.04**	**41.61**	**47.86**	**103.51**	**136.82**	**374.47**	PRV**45**L	**730.34**	**14.84**	520
570	½	PRV**50**	**929.62**	**44.79**	**73.46**	**129.11**	**157.98**	**395.62**	PRV**50**L	**875.83**	**16.96**	625
490	⅞	PRV**55**	**976.26**	**47.70**	**76.32**	**126.11**	**158.05**	**372.91**	PRV**55**L	**922.73**	**18.02**	760
490	⅞	PRV**60**	**1119.36**	**51.94**	**93.62**	**143.41**	**170.29**	**385.15**	PRV**60**L	**1059.15**	**20.14**	850

Also available in 220 volts, single phase, 60 cycles and 220-440 volt, 3 phase, 60 cycles.

Sizes and Capacities

Size No.	Tip Speeds RPM.	Static Pressure, Inches 0 CFM.	⅛ CFM.	¼ CFM.	½ CFM.	¾ CFM.	1 CFM.	1¼ CFM.	1½ CFM.
PRV**25** &	2740	1000	900	750	...	...	...	...	...
PRV**25**L	3650	1200	1070	960	600	...	...	...	...
	5600	1830	1760	1680	1530	1360	1140	780	...
PRV**30** &	3350	1850	1700	1570	1250	....	....	...	...
PRV**30**L	4470	2240	2100	1940	1600	1100	....	...	...
	6860	3350	3240	3180	3000	2800	2600	2400	2100
PRV**35** &	3270	2200	2000	1750	1400	....	....	....	....
PRV**35**L	4080	2900	2750	2500	1900	....	....	....	....
	5430	3850	3700	3550	3200	2800	2250	1000	....
	8340	6000	5900	5800	5600	5350	5150	4900	4650
PRV**40** &	3770	3500	3200	3000	2500	1800	....	....	....
PRV**40**L	4710	4450	4250	4000	3400	2500	....	....	....
	6280	5850	5700	5550	5200	4800	4350	3900	2750
	9630	9100	9000	8850	8600	8350	8100	7850	7550
PRV**45** &	3550	4000	3600	3200	2600	....	....	....	....
PRV**45**L	4270	4750	4650	4500	3600	1500	....	....	....
	5320	6100	6000	5900	5300	4600	3500	....	....
	7100	8450	8350	8250	7800	7350	6800	6250	5600
PRV**50** &	3960	5500	5100	4700	3700	2800	....	....	....
PRV**50**L	4760	7000	6700	6350	5450	4250	....	....	....
PRV**50** &	5940	8900	8600	8250	7600	6900	6050	4850	1000
PRV**50**L	7920	11850	11600	11400	10950	10450	9900	9350	8800
PRV**55** &	3760	6500	6000	5500	4400	.....	....	....	....
PRV**55**L	4370	7800	7350	6900	5700	3000	....	....	....
	5250	9500	9350	8750	7800	6750	4950	....	....
	6550	11800	11650	11300	10600	9800	9000	8100	6600
PRV**60** &	4100	8500	8200	7500	6400	5100	....	....	....
PRV**60**L	4770	10400	10100	9400	8100	6500	....	....	....
	5730	12400	12200	11700	10800	9700	8300	5700	....
	7150	15700	15500	15000	14300	13500	12600	11700	10600
PRV**65** &	4460	11500	11200	10800	9400	8000	6000	.....	.....
PRV**65**L	5190	13200	12800	12250	10900	9350	7000	.....	.....
	6230	16000	15700	15200	14100	13000	11800	10200	7500
	7780	20200	19900	19400	18500	17700	16800	15800	14800
PRV**70** &	4800	13500	13200	12600	11200	10000	8600	.....	.....
PRV**70**L	5580	16800	16400	15600	14200	12600	10500	6400	.....
	6710	20200	19800	19000	17900	16700	15500	14000	12000
	8380	25300	24900	24300	23400	22500	21600	20700	19700
	....	....	....	....	....	....	....	....	....
	....	....	....	....	....	....	....	....	....

Type RR Parause Non-Metallic Parkway Cables

An all-rubber non-metallic underground cable suitable for direct burial in the earth, in conduit or ducts. Takes the place of other types of parkway cable, including the fibrous covered and the metallic.

The conductors are protected with a heat and moisture-resistant rubber insulation. The outer neoprene jacket gives additional protection against moisture, elements in the soil, and acts as a cushion affording protection against injury to the current carrying conductors.

600 Volts—A.W.G.

Listed by Underwriters' Laboratories for Service Entrance

Single Conductor

A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
14	3/64	3/64	.255	61
12	3/64	3/64	.275	73
10	3/64	3/64	.295	98
8	4/64	3/64	.355	148
Stranded				
8	4/64	3/64	.363	154
6	4/64	3/64	.410	193
4	4/64	3/64	.490	253
2	4/64	3/64	.550	374
1	5/64	4/64	.655	491
1/0	5/64	4/64	.695	571
2/0	5/64	4/64	.740	675
3/0	5/64	4/64	.790	799
4/0	5/64	4/64	.850	954

2-Conductor

A.W.G. No.	Type	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid					
14	Round	3/64	3/64	.50	113
12	Round	3/64	4/64	.53	150
10	Twin	3/64	4/64	.358x.570	198
8	Twin	4/64	4/64	.41 x.70	298
Stranded					
8	Twin	4/64	4/64	.42x.70	308
6	Twin	4/64	4/64	.47x.81	424
4	Round	4/64	5/64	.931	600
2	Round	4/64	5/64	1.051	830
1	Round	5/64	5/64	1.192	1135
1/0	Round	5/64	6/64	1.306	1340
2/0	Round	5/64	6/64	1.397	1605
3/0	Round	5/64	6/64	1.500	1910
4/0	Round	5/64	6/64	1.615	2290

3-Conductor

A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
14	3/64	3/64	.52	201
12	3/64	4/64	.59	281
10	3/64	4/64	.63	446
8	4/64	4/64	.76	579
Stranded				
8	4/64	5/64	.78	600
6	4/64	5/64	.91	864
4	4/64	5/64	1.01	1085
2	4/64	5/64	1.14	1594
1	5/64	6/64	1.30	2025
1/0	5/64	6/64	1.39	2314
2/0	5/64	6/64	1.49	2674
3/0	5/64	6/64	1.60	3463
4/0	5/64	8/64	1.76	4072

600 Volts—MCM.—Stranded

Single Conductor

MCM. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
250	6/64	4/64	.888	1138
300	6/64	4/64	.945	1320
350	6/64	4/64	.994	1594
400	6/64	4/64	1.050	1820
500	6/64	4/64	1.126	2211

2-Conductor

MCM. No.	Type	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
250	Round	6/64	7/64	1.805	2800
300	Round	6/64	7/64	1.917	3240
350	Round	6/64	7/64	2.019	3700
400	Round	6/64	7/64	2.111	4130
500	Round	6/64	8/64	2.315	5110

3-Conductor

MCM. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
250	6/64	7/64	1.92	4229
300	6/64	7/64	2.04	4700
350	6/64	7/64	2.15	5300
400	6/64	8/64	2.28	6100
500	6/64	8/64	2.47	7400

2001–3000 Volts

Single Conductor

A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
8	7/64	3/64	.44	160
6	8/64	4/64	.54	230
Stranded				
6	8/64	4/64	.56	260
4	8/64	4/64	.61	330
2	8/64	4/64	.67	450
1	8/64	4/64	.71	540
1/0	8/64	4/64	.75	680
2/0	8/64	4/64	.80	750
3/0	8/64	5/64	.88	980
4/0	8/64	5/64	.94	1150

2-Conductor

A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
8	7/64	7/64	.97	570
6	8/64	7/64	1.10	720
Stranded				
6	8/64	7/64	1.15	780
4	8/64	7/64	1.25	1000
2	8/64	8/64	1.40	1320
1	8/64	8/64	1.48	1530
1/0	8/64	8/64	1.56	1770
2/0	8/64	8/64	1.66	2100
3/0	8/64	9/64	1.79	2560
4/0	8/64	9/64	1.91	2950

3-Conductor

A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
8	7/64	7/64	1.03	700
6	8/64	7/64	1.17	950
Stranded				
6	8/64	7/64	1.22	980
4	8/64	8/64	1.36	1320
2	8/64	8/64	1.49	1730
1	8/64	8/64	1.57	2010
1/0	8/64	8/64	1.66	2340
2/0	8/64	9/64	1.79	2890
3/0	8/64	9/64	1.91	3400
4/0	8/64	9/64	2.03	3970

4001–5000 Volts

Single Conductor

A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
8	10/64	4/64	.57	220
6	10/64	4/64	.60	280
Stranded				
6	10/64	4/64	.64	300
4	10/64	4/64	.68	390
2	10/64	4/64	.75	500
1	10/64	4/64	.79	590
1/0	10/64	5/64	.86	770
2/0	10/64	5/64	.90	830
3/0	10/64	5/64	.96	1040
4/0	10/64	5/64	1.01	1210

2-Conductor

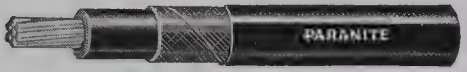
A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
8	10/64	7/64	1.16	740
6	10/64	7/64	1.23	840
Stranded				
6	10/64	8/64	1.33	980
4	10/64	8/64	1.43	1220
2	10/64	8/64	1.55	1480
1	10/64	8/64	1.63	1700
1/0	10/64	8/64	1.71	1940
2/0	10/64	9/64	1.84	2350
3/0	10/64	9/64	1.94	2730
4/0	10/64	9/64	2.05	3140

3-Conductor

A.W.G. No.	Thickness—Inches Insulation	Thickness—Inches Jacket	Nominal Outside Diameter Inches	Approx. Ship. Weight Pounds per M Ft.
Solid				
8	10/64	7/64	1.23	940
6	10/64	8/64	1.34	1140
Stranded				
6	10/64	8/64	1.41	1230
4	10/64	8/64	1.51	1500
2	10/64	8/64	1.65	1920
1	10/64	8/64	1.73	2210
1/0	10/64	9/64	1.85	2630
2/0	10/64	9/64	1.95	3120
3/0	10/64	9/64	2.06	3650
4/0	10/64	9/64	2.19	4220

Type RL Paranite Lead Covered Wires and Cables

600 Volts **Single Conductor**



For use wherever moisture is encountered and installed in conduit or other raceway or otherwise protected from mechanical injury. Useful for wiring in basements, laundries, dye housing, dairies and in other locations liable to be flooded.

Tinned copper conductors. Rubber insulation. Tape or braid. Lead sheath.

Made solid or stranded, soft-tinned copper, each insulated with type R, code, type RH, heat-resisting, or special rubber compound. Also furnished two or three conductor.

Solid

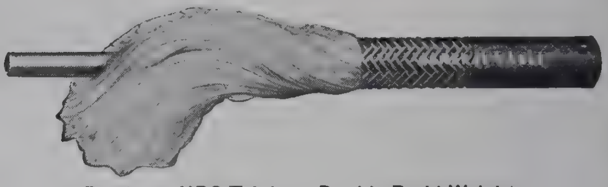
A.W.G. or M.C.M No.	Wire Diameter Mils	Wall Sheaths—Inches Rubber	Wall Sheaths—Inches Lead	Approx. Outside Diameter Inches	Standard Reel Length Feet	Approx. Net Weight Pounds per M Feet
*18	.040	2/64	2/64	.195	1000	88
*16	.051	2/64	2/64	.205	1000	98
14	.064	2/64	2/64	.250	1000	133
12	.081	2/64	2/64	.270	1000	150
10	.102	3/64	3/64	.320	1000	248
8	.128	4/64	3/64	.380	1000	319
6	.162	4/64	4/64	.440	1000	484

Stranded

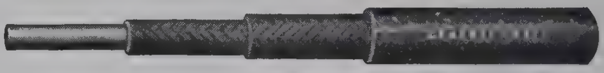
A.W.G. or M.C.M. No.	Wire Strands No.	Wire Strands Diameter Mils	Wall Sheaths—Inches Rubber	Wall Sheaths—Inches Lead	Approx. Outside Diameter Inches	Standard Reel Length Feet	Approx. Net Weight Pounds per M Feet
14	7	.0242	2/64	2/64	.260	1000	139
12	7	.0305	2/64	2/64	.280	1000	158
10	7	.0385	3/64	3/64	.340	1000	261
8	7	.0486	4/64	3/64	.400	1000	337
6	7	.0612	4/64	4/64	.460	1000	513
4	7	.0772	4/64	4/64	.510	1000	616
3	7	.0867	4/64	4/64	.540	1000	685
2	7	.0974	4/64	4/64	.570	1000	762
1	19	.0664	5/64	4/64	.640	1000	905
1/0	19	.0745	5/64	4/64	.680	1000	1021
2/0	19	.0837	5/64	4/64	.725	1000	1160
3/0	19	.0940	5/64	4/64	.780	1000	1330
4/0	19	.1055	5/64	4/64	.835	1000	1536
250	37	.0822	6/64	5/64	.945	1000	1988
300	37	.0900	6/64	5/64	1.000	1000	2232
350	37	.0973	6/64	5/64	1.055	1000	2455
400	37	.1040	6/64	5/64	1.100	1000	2679
500	37	.1162	6/64	5/64	1.185	1000	3116
600	61	.0992	7/64	6/64	1.325	500	3927
700	61	.1071	7/64	6/64	1.400	500	4361
750	61	.1109	7/64	6/64	1.430	500	4576
800	61	.1145	7/64	6/64	1.460	500	4789
900	61	.1215	7/64	6/64	1.530	500	5265
1000	61	.1280	7/64	6/64	1.580	500	5622
1250	91	.1172	8/64	7/64	1.780	500	7152
1500	91	.1284	8/64	7/64	1.900	500	8175
1750	127	.1174	8/64	7/64	2.025	500	9186
2000	127	.1255	8/64	7/64	2.130	500	10176

*Manufactured for 300 volts only.

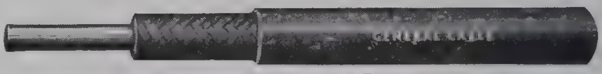
General Cable Weatherproof Wire and Cable



Peerless—URC Triple or Double Braid Weight



O.K.-URC Triple Braid



O.K.-URC Double Braid

With Stranded Copper Conductors

Size A.W.G.	No. Feet on Reel	No. Feet in Coil	Triple-Braided and Peerless Triple Braid Weight—Net Weight, Pounds Per 1000 Feet	Triple-Braided Per Mile	Triple-Braided Per Reel	Triple-Braided Per Coil	Double-Braided and Peerless Double Braid Weight—Net Weight, Pounds Per 1000 Feet	Double-Braided Per Mile	Double-Braided Per Reel	Double-Braided Per Coil
8	6250	2500	78	412	488	195	68	359	425	170
6	8000	1600	115	607	920	184	103	544	824	165
5	6500	1300	140	739	910	195	126	665	819	164
4	5000	1000	170	898	850	170	155	818	775	155
3	4250	800	206	1088	876	165	190	1003	808	152
2	3750	620	270	1426	1013	167	246	1299	923	153
1	2500	500	328	1732	820	164	303	1600	758	152
1/0	4000	...	424	2239	1700	...	388	2049	1552	...
2/0	3500	...	522	2756	1830	...	482	2545	1687	...
3/0	3000	...	653	3448	1960	...	604	3189	1812	...
4/0	2500	...	800	4224	2000	...	745	3934	1863	...
250	2500	...	985	5201	2460	...	907	4789	2268	...
300	2000	...	1174	6199	2350	...	1083	5718	2166	...
350	2000	...	1345	7102	2690	...	1248	6589	2496	...
400	2000	...	1553	8200	3106	...	1436	7582	2872	...
450	2000	...	1724	9103	3448	...	1601	8453	3202	...
500	2000	...	1894	10000	3788	...	1765	9319	3530	...
600	1500	...	2235	11801	3340	...	2093	11051	3140	...
700	1200	...	2650	13992	3180	...	2471	13047	2965	...
750	1100	...	2822	14900	3104	...	2635	13913	2899	...
800	1000	...	2992	15798	2992	...	2799	14779	2799	...
900	1000	...	3332	17593	3332	...	3127	16511	3127	...
1000	900	...	3674	19399	3300	...	3456	18248	3110	...
1250	800	...	4508	23802	3606	...	4264	22514	3411	...
1500	700	...	5380	28406	3766	...	5098	26917	3569	...
1750	600	...	6193	32699	3716	...	5894	31120	3536	...
2000	500	...	7008	37002	3504	...	6690	35323	3345	...

With Solid Copper Conductors

14	....	4000	25	132	...	100	20	106	...	80
12	....	2850	35	185	...	151	30	158	...	86
10	8000	4000	53	280	424	212	46	243	368	184
9	6300	3150	62	327	391	195	54	288	340	170
8	6250	2500	75	396	469	188	66	348	413	165
6	8000	1600	112	591	896	179	100	528	800	160
5	6500	1300	135	713	878	176	122	644	793	159
4	5000	1000	164	866	820	164	151	797	755	151
3	4000	800	199	1051	796	159	185	978	740	148
2	3100	620	260	1373	806	161	239	1262	741	148
1	2500	500	316	1668	790	158	294	1552	735	147
1/0	4000	...	407	2149	1630	...	377	1991	1508	...
2/0	3500	...	502	2651	1760	...	467	2466	1635	...
3/0	3000	...	629	3321	1890	...	587	3099	1761	...
4/0	2500	...	767	4050	1920	...	723	3817	1808	...

Sizes 8 to 14 A.W.G. inclusive also supplied in 100-pound bundles of four coils, each weighing approximately 25 pounds; also supplied in 500-foot cartons.

Sizes 4 to 6 A.W.G. inclusive also supplied in 500-foot coils.

Hazacord Flexible Cable

Listed by Underwriters' Laboratories

Type SO, 2-Conductor

Used for leads on appliances and tools and other portable equipment, machinery, instruments, etc.

With mold-cured Hazaprene ZBF Sheath.

Type SO—Heavy Duty—600 Volts

	Thickness—Inches		No. C-102 2-Conductor			No. C-103 3-Conductor			No. C-104 4-Conductor		
Size No. A.W.G.	Insulation	Sheath	Carrying Cap. Amp.	Approx. O.D. In.	Approx. Wt. Lb. per 1000 Ft.	Carrying Cap. Amp.	Approx. O.D. In.	Approx. Wt. Lb. per 1000 Ft.	Carrying Cap. Amp.	Approx. O.D. In.	Approx. Wt. Lb. per 1000 Ft.
18	.031	.063	7	.390	78	7	.405	88	5.6	.435	105
16	.031	.063	10	.405	88	10	.430	105	8	.485	135
14	.047	.078	15	.530	154	15	.560	188	12	.605	230
12	.047	.094	20	.605	205	20	.635	245	16	.665	295
10	.047	.094	25	.640	240	25	.690	310	20	.745	380

Type SJO—Light Duty—300 Volts

	Thickness—Inches		No. C-111 2-Conductor			No. C-112 3-Conductor			No. C-113 4-Conductor		
Size No. A.W.G.	Insulation	Sheath	Carrying Cap. Amp.	Approx. O.D. In.	Approx. Wt. Lb. per 1000 Ft.	Carrying Cap. Amp.	Approx. O.D. In.	Approx. Wt. Lb. per 1000 Ft.	Carrying Cap. Amp.	Approx. O.D. In.	Approx. Wt. Lb. per 1000 Ft.
18	.031	.047	7	.310	58	7	.330	70	5.6	.360	85
16	.031	.047	10	.330	68	10	.355	85	8	.390	100
14	.047	.047	15	.430	110	15	.465	135	12	.510	175
12	.047	.047	..	....	...	20	.505	165	....	....	...

NOTE: Underwriters' Laboratories provide no standards for Size Nos. 12 and 14 A.W.G.

Vulcaprene Neoprene Sheathed Portable Cords

Bare copper conductors, flexible stranding, separator, rubber insulation, twisted with fillers, sheathed with tough, durable oil and heat resistant neoprene compound, vulcan and vulcaprene sheathed cords are cured by the continuous vulcanizing, CV, method.

Type SO—600 Volts

For heavy portable tools and similar hard usage.

		2-Conductor		3-Conductor		4-Conductor	
A.W.G. No.	Stranding Inches	Outside Diameter Inches	Weight Pounds per M Ft.	Outside Diameter Inches	Weight Pounds per M Feet	Outside Diameter Inches	Weight Pounds per M Feet
18	41/34	.390	78	.405	91	.435	100
16	65/34	.405	90	.430	112	.485	135
14	41/30	.530	146	.560	174	.605	200
12	65/30	.605	188	.635	225	....	...
10	103/30	.640	246	....	...	....	...

Type SJO—300 Volts

Stationary Service

For electric refrigerators, washing machines, etc.

		2-Conductor		3-Conductor	
A.W.G. No.	Stranding Inches	Outside Diameter Inches	Weight Pounds per M Feet	Outside Diameter Inches	Weight Pounds per M Feet
18	16/30	.300	47	.330	68
16	26/30	.325	63	.355	90

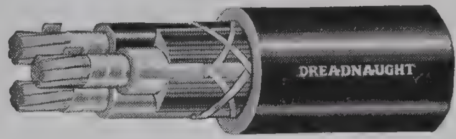
Constant Service

For portable tools, etc.

		2-Conductor		3-Conductor		4-Conductor	
A.W.G. No.	Stranding Inches	Outside Diameter Inches	Weight Pounds per M Feet	Outside Diameter Inches	Weight Pounds per M Feet	Outside Diameter Inches	Weight Pounds per M Feet
18	41/34	.300	47	.330	68	.360	77
16	65/34	.325	63	.355	90	.390	105

Type W Paranite Dreadnaught Multiple Conductor Cables

600 Volts



Conductors of tinned copper.

Type W Round, without Ground

B.&S. Gage No.	Stranding Qty.	No.	B.&S. Gage No.	Stranding Qty.	No.	B.&S. Gage No.	Stranding Qty.	No
8	49	25	**4**	133	25	**00**	259	23.
8	133	29	**3**	133	24	**000**	259	22
6	49	23	**2**	133	23	**0000**	259	21
6	133	27	**1**	133	22	....	...	..
4	49	21	**0**	259	24	....	...	..

Specifications

	Stranding		2-Conductor		3-Conductor		4-Conductor	
A.W.G. No.	Qty.	No.	Allow. Cap. Amps.	O.D. In.	Allow. Cap. Amps.	O.D. In.	Allow. Cap. Amps.	O.D. In.
8	133	29	40	.850	35	.950	30	1.100
6	49	23	50	.950	50	1.100	40	1.150
6	133	27	50	.950	50	1.100	40	1.200
4	49	21	70	1.100	65	1.200	55	1.300
3	133	24	80	1.125	75	1.300	..	.....
2	133	23	95	1.300	90	1.400	..	.....
1	133	22	110	1.500	100	1.600	..	.....
1/0	259	24	130	1.600	120	1.700	..	.....
2/0	259	23	150	1.700	135	1.800	..	.....
3/0	259	22	175	1.800	155	2.000	..	.....
4/0	259	21	200	2.000	180	2.100	..	.....

Approximate Shipping Weights per M Feet

		Weight, Pounds								
		2-Conductor			3-Conductor			4-Conductor		
A.W.G. No.	Strand. No.	**250-** Foot Coils	**500-** Foot Reels	**1000-** Foot Reels	**250-** Foot Coils	**500-** Foot Reels	**1000-** Foot Reels	**250-** Foot Coils	**500-** Foot Reels	**1000-** Foot Reels
8	29	355	520	580	500	620	720	650	1090	1050
6	23	480	650	700	700	1140	1100	800	1240	1200
6	27	490	660	710	710	1150	1110	860	1300	1260
4	21	675	1115	1070	910	1350	1300	1100	1540	1500
3	24	885	1325	1285	1120	1680	1520	....	....	....
2	23	1000	1560	1400	1345	1900	1745	....	....	....
1	22	....	2100	....	....	2500	....	....	....	....
1/0	24	....	2320	....	....	2790	....	....	....	....
2/0	23	....	2610	....	....	3185	....	....	....	....
3/0	22	....	2920	....	....	3740	....	....	....	....
4/0	21	....	3530	....	....	4380	....	....	....	....

Aluminum Cable

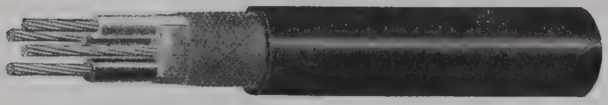
A.C.S.R.—Steel Reinforced, Bare

							Standard Shipment				
							Reels			Coils	
Size A.W.G.	*Cop-per Equiv.	No. Strands (Al./Steel)	Ult. Str. Lb.	Wt. Lb. per 1000 Ft.	Wt. Lb. per Mile	Lgth. per Pc. Ft.	No. Pc. on Reel	Net Wt. Lb. (±2%)	Diam. of Reel In.	Lgth. per Pc. Ft.	Net Wt. Lb. (±2%)
6	8	6/1	1170	36.1	190	17240	2	1246	44	5750	208
4	6	6/1	1830	57.4	303	10870	2	1246	44	3625	208
4	6	7/1	2288	67.1	354	7120	2	955	40	3560	239
2	4	6/1	2790	91.3	482	6825	2	1246	44	2275	208
2	4	7/1	3525	106.7	563	8950	1	955	40	2240	239
1	3	6/1	3480	115.2	608	5405	2	1246	44	1800	208
1/0	2	6/1	4280	145.2	767	6440	1	934	40	1610	234
2/0	1	6/1	5345	183.1	967	5100	1	934	40	....	...
3/0	1/0	6/1	6675	230.9	1219	5400	1	1246	44	....	...
4/0	2/0	6/1	8420	291.1	1537	4285	1	1246	44	....	...

*Based on equal d.c. resistance; Cu—97%, Al—61%.

NOTE: Specify stranding on all orders; e.g., No. 4 A.C.S.R. (6/1), or No. 4 A.C.S.R. (7/1). Standard lengths in table are approximate. Allowable tolerances are ±5% for all cables larger than No. 1 and ±10% for No. 1 and smaller. All cable will be shipped on plywood-wrapped reels unless otherwise ordered. An amount not exceeding 10% of total weight of any one order may be shipped in random lengths, but no piece shorter than 50% of standard length will be shipped. No random length will be wound on the same reel with a standard length, and all reels will be marked showing number of pieces and length per piece.

General Cable Bus Drop Cable



Designed for transmitting power in factories where a flexible and extensible connecting circuit is desired between an overhead open or enclosed fixed bus and the electrical motors running machinery such as lathes or punch presses. Where equipment is likely to be shifted from one position to a nearby location on the floor, this method of installation is particularly advantageous.

Stranded conductors for flexibility. Gencaseal or Underwriters' Type R insulation. Conductors color-coded for easy identification. Uninsulated conductor for grounding frame of machine. Impervious Gencaseal sheath or a tough heavy loom-woven covering with flame and moisture-resisting finish overall for mechanical protection.

Types of Bus Drop Cable

Type TG has three Gencaseal insulated conductors and one uninsulated conductor of the same size used to ground the frame of the machine. The popular sizes range from 14 to 1/0 A.W.G. and are stranded in accordance with A.S.T.M. B-8 for Class B stranding. The insulated conductors meet the requirements of Underwriters' Laboratories Standard for Type T wire and are color-coded black, white and red unless otherwise specified. The three insulated conductors are cabled with the uninsulated grounding conductor. Fillers are used to round out and make a firm core and the assembled conductors are enclosed in a tape and an impervious Gencaseal sheath.

Type TM is identical to Type TG as far as individual conductors are concerned but the overall covering, in place of the Gencaseal sheath, is a heavy cotton loom covering having a flame and moisture-resisting finish.

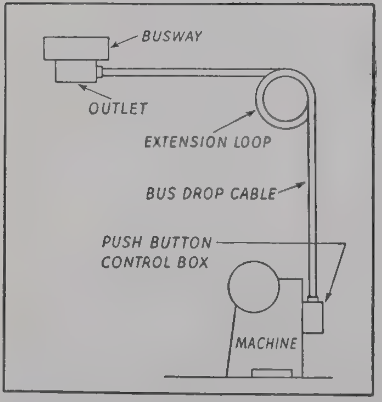
Type RM is furnished with rubber or synthetic rubber insulated conductors in accordance with Underwriters' Standard for Type R wire. The individual conductors are covered with color-coded Guardian braids and the assembled conductors with the grounding conductor are enclosed in a heavy cotton loom covering having a flame and moisture-resisting finish.

Table of Diameters and Weights

For Circuits Not Exceeding 600 Volts

Size A.W.G.	No. of Strands	Insulation Thickness. 64ths inch Types TG and TM	Type RM	Approx. O. D. —Inches— Type TG	Type TM	Type RM	Approx. Net Weight —Pounds per 1000′— Type TG	Type TM	Type RM
14	7	2	3	.40	.43	.57	109	120	180
12	7	2	3	.45	.47	.61	149	159	232
10	7	2	3	.51	.53	.67	214	226	310
8	7	3	4	.66	.67	.80	353	351	446
6	7	4	4	.81	.82	.96	556	549	635
4	7	4	4	.94	.95	1.09	830	798	906
2	7	4	4	1.11	1.16	1.26	1203	1190	1304
1/0	19	5	5	1.38	1.40	1.52	1906	1844	2012

Installation



Bus drop cable is connected to the overhead bus at one end and usually to a push-button control box mounted on or near the motor or machine at the other end. A loop of several turns provides the desired reserve length for the circuit between the bus and control box. This loop makes it unnecessary to cut or splice the cable when the machine is moved and is ordinarily held in place near the bus end of the circuit. The cable is connected to the overhead bus through standard fittings in an outlet box and may be suspended by a cable grip.

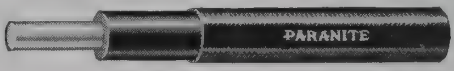
Paranite Building Wires

Type R—Code Compound
Type RH—Paranite-Paratherm Compound—Heat Resisting
Type RW—Paranite-Hydroseal Compound—For Moist Locations
600 Volts

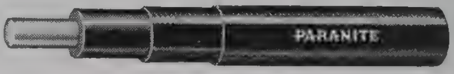
For wiring between walls, ceilings in residences, concealed knob and tube work, flexible steel or rigid conduit wiring or in metal raceways in all buildings in accordance with National Board of Fire Underwriters' regulations or Municipality requirements.

Tinned copper conductor. Rubber insulation. Saturated braid. Flame, moisture-resistant finish.

Marked every foot with size, voltage, type.



Solid Single Braid



Solid Double Braid

Furnished in single or double braid in black, white, red, blue, green, yellow, brown, orange for quick testing and identification. Comes in 500-foot coils.

A.W.G. No.	Wire Diameter Mils	Rubber Wall Inches	Approximate Outside Diameter —Inches— Single	Double	Approximate Net Weight Pounds —Per M Feet— Single	Double
14	.064	*2/64	.16	.19	21	24
12	.081	*2/64	.18	.21	28	31
10	.102	3/64	.23	.27	49	54
8	.128	4/64	.29	.33	80	85
6	.162	4/64	...	.36	..	120

Stranded

For same use as solid, but where flexibleness, ease of handling in cramped spaces or where sharp bends in conduit or raceways into which wire is pulled. Larger sizes for electric mains, street railway feeders, power transmission lines.

Regularly furnished black, white or red for quick identification; other colors, if required.

Single Braid

A.W.G. or C.M. No.	Wire —Strands— No.	Diameter Mils	Rubber Wall Inches	Approx. O.D. Inches	Standard —Package— No.	Type	Approx. Net Weight per M Feet
14	7	.0242	*2/64	.155	500	Coil	33
12	7	.0305	*2/64	.174	500	Coil	43
10	7	.0385	3/64	.230	500	Coil	56
8	7	.0486	4/64	.291	500	Coil	88

Double Braid

A.W.G. or C.M. No.	Wire —Strands— No.	Diameter Mils	Rubber Wall Inches	Approx. O.D. Inches	Standard —Package— No.	Type	Approx. Net Weight per M Feet
14	7	.0242	*2/64	.168	500	Coil	37
12	7	.0305	*2/64	.188	500	Coil	46
10	7	.0385	3/64	.245	500	Coil	63
8	7	.0486	4/64	.300	500	Coil	95
†6	7	.0612	4/64	.348	500	Coil	142
4	7	.0772	4/64	.400	500	Coil	200
2	7	.0974	4/64	.461	500	Coil	289
1	19	.0664	5/64	.545	1000	Reel	378
1/0	19	.0745	5/64	.586	1000	Reel	450
2/0	19	.0837	5/64	.632	1000	Reel	540
3/0	19	.0940	5/64	.683	1000	Reel	670
4/0	19	.1055	5/64	.741	1000	Reel	810
250M	37	.0822	6/64	.845	1000	Reel	950
300M	37	.0900	6/64	.895	1000	Reel	1140
350M	37	.0973	6/64	.970	1000	Reel	1310
400M	37	.1040	6/64	1.020	1000	Reel	1501
500M	37	.1162	6/64	1.100	1000	Reel	1800
600M	61	.0992	7/64	1.210	1000	Reel	2211
700M	61	.1071	7/64	1.290	1000	Reel	2548
750M	61	.1109	7/64	1.320	1000	Reel	2715
800M	61	.1145	7/64	1.355	1000	Reel	2882
900M	61	.1215	7/64	1.420	1000	Reel	3150
1000M	61	.1280	7/64	1.480	1000	Reel	3545
1250M	91	.1172	8/64	1.645	500	Reel	4428
1500M	91	.1284	8/64	1.760	500	Reel	5280
1750M	127	.1174	8/64	1.900	500	Reel	6109
2000M	127	.1255	8/64	1.980	500	Reel	6955

*When hydro-therm dual marked wire is required, it will be furnished in size Nos. 14 and 12 with 3/64-inch insulation.

†Double braid or tape and braid optional on No. 6 and larger.

Habirshaw Small Diameter Building Wire

600 Volts, N.E.C.

Habirdure—Type T & TW

All Thermoplastic Insulated Type

Type T & TW Building Wire differs from the conventional rubber insulated braided building wires in that the insulation consists of a wall of Habirdure, a synthetic resin. Habirdure has exceptionally high dielectric strength, is practically non-aging and is highly resistant to moisture, oil, acids, and alkalis. The tough nature of the material makes it unnecessary to use a braided covering for protection against mechanical injury. The omission of an overall braiding reduces the outside diameter to a minimum and makes Type T & TW the smallest of the Building Wires. Its hard, smooth surface makes it extremely easy to pull. Type T & TW is furnished in a range of bright, fadeless colors which are unaffected under the roughest possible handling during installation.

Habirdure Type T is approved in the National Electrical Code as general purpose wiring for operation at 60°C. in sizes up to 4/0 A.W.G. Sizes larger than 4/0 are approved for open wiring only.

Habirdure is also approved by the Underwriters' Laboratories (Guide Card 460-190Y file E 13092) for the following uses:

On switchboards where oil is not present and temperatures do not exceed 80°C.

Within appliances when exposed to oil and temperatures not exceeding 60°C.

Within appliances when exposed to air and temperatures not exceeding 80°C.

Habirdure Type TW is approved for use in wet locations in place of lead covered cable when the temperature does not exceed 60°C.

Habirdure Type T & TW can be supplied in the following standard colors, black, white, red, green, orange, blue, yellow, brown and purple.

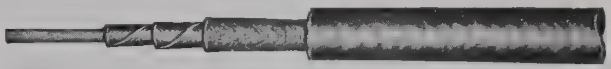
Size A.W.G. or CM	Strand	Wall Thick. 64ths Inches	Approx. O.D. In.	Approx. Wt., Lb. per 1000 Feet
20	1	2	.098	7
	7	2	.102	8
18	1	2	.106	9
	7	2	.112	10
	19	2	.112	10
16	1	2	.118	13
	7	2	.124	14
	19	2	.125	14
14	1	2	.131	20
	7	2	.139	22
	19	2	.140	22
12	1	2	.148	28
	7	2	.158	31
	19	2	.159	31
10	1	2	.169	41
	7	2	.182	45
	19	2	.183	45
8	1	3	.228	69
	7	3	.244	75
	19	3	.245	75
6	1	4	.292	110
	7	4	.323	119
	19	4	.323	119
	37	4	.323	119
4	7	4	.372	176
	19	4	.372	176
	37	4	.372	176
2	7	4	.433	267
	19	4	.433	267
	37	4	.433	267
1	19	5	.508	339
	37	5	.508	339
	61	5	.508	339
1/0	19	5	.549	415
2/0	19	5	.595	515
3/0	19	5	.647	635
4/0	19	5	.705	785
250,000	37	6	.788	925
300,000	37	6	.843	1095
350,000	37	6	.895	1260
400,000	37	6	.942	1430
500,000	37	6	1.029	1760
600,000	61	7	1.143	2100
700,000	61	7	1.214	2420
750,000	61	7	1.249	2600
800,000	61	7	1.282	2740
900,000	61	7	1.345	3100
1,000,000	61	7	1.404	3420
1,250,000	91	8	1.577	4220
1,500,000	91	8	1.702	5050
1,750,000	127	8	1.817	5860
2,000,000	127	8	1.922	6700
....	...	..	.....	....
....	...	..	.....	....

Rockbestos A.V.C. Boiler Room and Lighting Wire

600 Volt

Type AVA—Solid Conductor—Table C

For lighting and control circuits in conduit or open. Designed especially for boiler rooms, steel mills, circuits around ovens, kilns, etc. Will withstand continuous high temperatures without failure.



Sizes 6 to 4/0 have extra felted asbestos wall next to conductor.

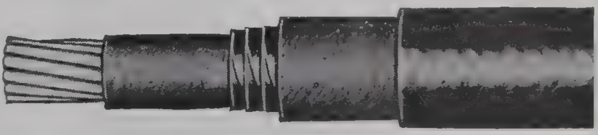
Size A.W.G.	Bare Diam. Inches	Nominal Finished Diam. Inches	Approx. Pounds per M Ft.	STANDARD SHIPPING LGTHS. FT. Coils	Reels
0000	.460	.710	785	...	500
000	.410	.660	640	...	500
00	.365	.615	525	...	500
0	.325	.575	430	...	500
1	.289	.540	350	...	500
2	.258	.480	275	...	500
3	.229	.450	230	...	500
4	.204	.425	190	...	500
5	.182	.405	160	...	500
6	.162	.385	135	...	500
8	.128	.310	89	500	...
10	.102	.285	65	500	...
12	.081	.265	50	500	...
14	.064	.245	40	500	...
16	.051	.235	33	500	...
18	.040	.220	28	500	...

Rockbestos A.V.C. Power Cable

600 Volt

Type AVA—Coarse Stranded Conductor—Table E

Listed by Underwriters' Laboratories



Size CM.	Stranding	Bare Diam. Inches	Nominal Finished Diam. Inches	Approx. Pounds per M Ft.	STANDARD SHIP. LGTHS. —FEET— Coils	Reels
1,000,000	61/.1280	1.152	1.465	3490	...	500
900,000	61/.1215	1.093	1.405	3165	...	500
800,000	61/.1145	1.031	1.345	2835	...	500
750,000	61/.1109	.998	1.310	2675	...	500
700,000	61/.1071	.964	1.275	2505	...	500
600,000	61/.0992	.893	1.205	2175	...	500
500,000	37/.1162	.814	1.115	1825	...	500
450,000	37/.1103	.772	1.075	1660	...	500
400,000	37/.1040	.728	1.030	1490	...	500
350,000	37/.0973	.681	.985	1325	...	500
300,000	37/.0900	.630	.930	1155	...	500
250,000	37/.0822	.575	.875	985	...	500
A.W.G.						
0000	19/.1055	.528	.780	815	...	500
000	19/.0940	.470	.720	665	...	500
00	19/.0837	.419	.670	545	...	500
0	19/.0745	.373	.625	450	...	500
1	19/.0664	.332	.585	370	...	500
2	7/.0974	.292	.515	285	...	500
3	7/.0867	.260	.480	240	...	500
4	7/.0772	.232	.455	200	...	500
5	7/.0688	.206	.430	165	...	500
6	7/.0612	.184	.405	140	...	500
8	7/.0486	.146	.350	95	500	...
10	7/.0385	.116	.310	70	500	...
12	7/.0305	.092	.285	55	500	...
14	7/.0242	.073	.265	45	500	...

Also in 1000, 2000, 3000 and 5000 volt constructions.

When a stranded conductor is desired specify Table E cable.

Rockbestos Heat-Resisting Fixture Wires

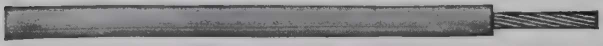
300 Volt—Table FS

Listed by Underwriters' Laboratories for Fixture Use

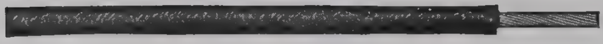
Insulated with pure asbestos, felted and impregnated. It is non-deteriorating, heat-resisting and fireproof.

The National Electrical Code stipulates that fixtures operating at not more than 300 volts between conductors which may be subject to temperatures in excess of 194°F. (90°C.) must be wired with either Type AF Fixture Wire or Types AFC, AFPO or AFPD Flexible Cord.

Type AF, Single Conductor, Plain



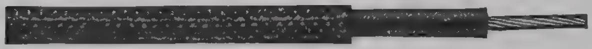
White Insulation



Black Insulation

The plain type has no braid and is generally employed in fixtures where the wiring is concealed. Supplied in black or white finish. Colors on order.

Type AF, Single Conductor, Braided



Solid Color Braid

Solid Color Braid with Marker

Braided fixture wire is finished in standard colors, mahogany brown and black in glazed cotton. Other colors and polarity marker threads can be furnished to order.

Plain or Braided

Size A.W.G.	Stranding	Nom. Finished Diameter, Inches Plain	Braided	Standard Shipping Length, Feet Spools	Coils
10	105/30	.220	.250	...	500
12	65/30	.195	.225	...	500
14	41/30	.145	.175	500	...
16	26/30	.130	.160	500	...
18	16/30	.115	.145	500	...

Crescent Armored Bushed Cable

Type A.C.—600 Volts

CRESCENT 14
R
600 V

Solid

Size A.W.G. and No. Conductors	Thickness Rubber Inches	Approx. Diam. Overall Inches	Approx. Wt. Lb. per 1000 Feet	Std. Lgth. Coil Feet	Approx. Shipping Wt. Lb. Std. Pkg.
14/2	2/64	.454	216	250	54
14/3	2/64	.476	244	250	61
14/4	2/64	.514	284	250	71
12/2	2/64	.488	240	250	60
12/3	2/64	.513	292	250	73
12/4	2/64	.553	360	250	85
10/2	3/64	.592	320	250	80
10/3	3/64	.625	392	250	98
10/4	3/64	.721	615	150	92
8/1	4/64	.464	268	250	67
8/2	4/64	.748	594	150	89
8/3	4/64	.789	715	150	107
6/1	4/64	.498	320	250	80
Stranded					
8/1	4/64	.481	280	250	70
8/2	4/64	.782	607	150	91
8/3	4/64	.826	715	150	107
8/4	4/64	.902	950	100	95
6/1	4/64	.519	336	250	84
6/2	4/64	.858	710	100	71
6/3	4/64	.907	830	100	83
6/4	4/64	.993	1050	100	105
4/1	4/64	.567	420	250	105
4/2	4/64	.954	880	100	88
4/3	4/64	1.011	1160	100	116
4/4	4/64	1.108	1430	100	143
2/1	4/64	.627	520	250	130
2/2	4/64	1.074	1120	100	112
2/3	4/64	1.140	1470	100	147
1/1	5/64	.739	790	100	79

Number of Conductors in Conduit or Tubing

1 to 9 Conductors—Rubber-Covered Types RF-32, R, RH, RW, and RU Thermoplastic, Types TF, T, and TW

1947 N.E.C. Table 4

Size Conductor A.W.G.	Minimum Size of Conduit, Inches — No. of Conductors 1	2	3	4	5	6	7	8	9
18	½	½	½	½	½	½	½	¾	¾
16	½	½	½	½	½	½	¾	¾	¾
14	½	½	½	½	¾	¾	1	1	1
12	½	½	½	¾	¾	1	1	1	1¼
10	½	¾	¾	¾	1	1	1	1¼	1¼
8	½	¾	¾	1	1¼	1¼	1¼	1½	1½
6	½	1	1	1¼	1½	1½	2	2	2
4	½	1¼	*1¼	1½	1½	2	2	2	2½
3	¾	1¼	1¼	1½	2	2	2	2½	2½
2	¾	1¼	1¼	2	2	2	2½	2½	2½
1	¾	1½	1½	2	2½	2½	2½	3	3
0	1	1½	2	2	2½	2½	3	3	3
00	1	2	2	2½	2½	3	3	3	3½
000	1	2	2	2½	3	3	3	3½	3½
0000	1¼	2	2½	3	3	3	3½	3½	4
C. M.									
250000	1¼	2½	2½	3	3	3½	4	4	4½
300000	1¼	2½	2½	3	3½	4	4	4½	4½
350000	1¼	3	3	3½	3½	4	4½	4½	5
400000	1½	3	3	3½	4	4	4½	5	5
500000	1½	3	3	3½	4	4½	5	5	6
600000	2	3½	3½	4	4½	5	6	6	6
700000	2	3½	3½	4½	5	5	6	6	...
750000	2	3½	3½	4½	5	6	6	6	...
800000	2	3½	4	4½	5	6	6	...	...
900000	2	4	4	5	6	6	6	...	...
1000000	2	4	4	5	6	6	...	...	...
1250000	2½	4½	4½	6	6	...	...	...	...
1500000	3	5	5	6	...	...	...	...	...
1750000	3	5	6	6	...	...	...	...	...
2000000	3	6	6	...	...	...	...	...	...

*Where a service run of conduit or electrical metallic tubing does not exceed 50 feet in length and does not contain more than the equivalent of two quarter-bends from end to end; two No. 4 insulated and one No. 4 bare conductors may be installed in 1-inch conduit or tubing.

The above applies only to complete conduit systems, and does not apply to short sections of conduit used for the protection of exposed wiring from mechanical injury.

Dimensions of Rubber-Covered and Thermoplastic Covered Conductors

1947 N.E.C. Table 13

Size. A.W.G.	Types RF-32, R, RH, RW Approx. Diam., Inches	Types RF-32, R, RH, RW Approx. Area Sq. In.	Types TF, T, TW, RU§ Approx. Diam., Inches	Types TF, T, TW, RU§ Approx. Area. Sq. In.	Size A.W.G.	Types RF-32, R, RH, RW Approx. Diam., Inches	Types RF-32, R, RH, RW Approx. Area Sq. In.	Types TF, T, TW, RU§ Approx. Diam., Inches	Types TF, T, TW, RU§ Approx. Area Sq. In.
18	.146	.0167	.106	.0088	MCM.				
16	.158	.0196	.118	.0109	250	.868	.5917	.788	.4877
*14	.171	.0230	.131	.0135	300	.933	.6837	.843	.5581
†14	‡.204	‡.0327	....	.....	350	.985	.7620	.895	.6291
*12	.188	.0278	.148	.0172	400	1.032	.8365	.942	.6969
†12	‡.221	‡.0384	....	.....	500	1.119	.9834	1.029	.8316
10	.242	.0460	.168	.0224	600	1.233	1.1940	1.143	1.0261
8	.311	.0760	.228	.0408	700	1.304	1.3355	1.214	1.1575
6	.397	.1238	.323	.0819	750	1.339	1.4082	1.249	1.2252
4	.452	.1605	.372	.1087	800	1.372	1.4784	1.282	1.2908
3	.481	.1817	.401	.1263	900	1.435	1.6173	1.345	1.4208
2	.513	.2067	.433	.1473	1000	1.494	1.7531	1.404	1.5482
1	.588	.2715	.508	.2027	1250	1.676	2.2062	1.577	1.9532
0	.629	.3107	.549	.2367	1500	1.801	2.5475	1.702	2.2748
00	.675	.3578	.595	.2781	1750	1.916	2.8895	1.817	2.5930
000	.727	.4151	.647	.3288	2000	2.021	3.2079	1.922	2.9013
0000	.785	.4840	.705	.3904	....	.....	......	.....	......

*With 2/64-inch insulation.

†With 3/64 inch insulation.

‡Dimensions for Type RW; also to be used for new work in computing the size of conduit or tubing for combinations of conductors not shown in Table 4.

§Type RU conductors recognized in sizes No. 14 to No. 6. No. 18 to No. 8, solid; No. 6 and larger stranded.

Republic Inch-Marked ELECTRUNITE E.M.T.

REG. U.S. PAT. OFF.

Lightweight Threadless Rigid Steel Conduit

No threads to cut, ductile, bends easily, light, tough and strong; resists corrosion.

Guide-Lined to aid in lining up offsets, saddles and back-to-back bends.

Knurled inside finish shows by actual test a saving of 20 to 30 per cent in the effort required to pull cable through. Cable rides the tops of the tiny knobs instead of making contact the entire length.

The National Electrical Code approves ELECTRUNITE E.M.T. for open and concealed work and buried in concrete.

Size Inches	Per 100 Ft.	Diameter, In. Internal	Diameter, In. External	Ft. to a Bundle	Approx. Wt., Lb. per 1000 Ft.
3/8	**$9.05**	.493	.577	200	250
*1/2	**7.08**	.622	.706	100	300
*3/4	**9.64**	.824	.922	100	450
*1	**13.35**	1.049	1.163	100	640
†1 1/4	**18.89**	1.380	1.508	50	940
1 1/2	**21.31**	1.610	1.738	50	1140
2	**27.85**	2.067	2.195	30	1100

*Furnished with knurled inside finish, Inch-Marked and Guide-Lined. †Inch-Marked and Guide-Lined.

Elbows

Elbow Size Inches	Per 100 Pieces	Radius to Center Line ‡(90°) Inches	Offset (90° Elbows) Inches	Straight Leg or Tangent (90° Elbows) Inches	Std. Pkg. (90°)	Wt., Lb. Per 100 Pcs. (90° Elbows)
1	**$21.75**	5.750	7.812	2.062	25	76
1 1/4	**31.63**	7.375	9.375	2.000	25	104
1 1/2	**41.57**	8.625	10.625	2.000	20	195
2	**77.17**	9.500	12.375	2.875	10	290

‡45° elbows are also available.

Paranite Flexible Steel Conduits

Single Strip

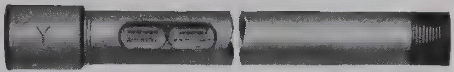
Useful for short runs in cramped locations where bends must be sharp or irregular. May be used in place of rigid conduit.

Formed spirally in one continuous length of galvanized steel strip with interlocked construction. This type construction permits greater flexibility and creates a continuous metal to metal grounding contact throughout the entire length of the conduit.

Inside Diameter Inches Trade Size	Inside Diameter Inches Actual	Approx. Outside Diameter Inches	Standard Coil Length Feet	Approximate Weight Pounds Net per M Feet	Approximate Weight Pounds Shipping per Coil
5/16	.3125	.530	250	160	40
3/8	.3750	.570	250	195	49
1/2	.6250	.898	100	490	49
3/4	.8125	1.086	50	620	31
1	1.0000	1.363	50	1180	59
1 1/4	1.2500	1.625	50	1420	71
1 1/2	1.5000	1.860	25	1800	45
2	2.0000	2.445	25	2280	57
2 1/2	2.5000	2.953	25	2840	71
3	3.0000	3.400	25	3130	75

Youngstown Buckeye Conduit

Hot Dipped or Electro-Galvanized



The specially selected pipe for this conduit is first thoroughly cleaned by pickling and then immersed in a bath of molten pure zinc. After removal from this bath by a special process which leaves a clean, smooth coating of zinc on both the outside and inside of the pipe, the pipe is accurately threaded. A coating of tough transparent enamel is baked on both the outside and inside of the conduit, providing a smooth raceway through which wires may be readily fished.

Black Enameled

After dipping in the enamel, the conduit is allowed to set to insure uniform thickness of the coating and to prevent wrinkling. The loaded cages of pipe are then placed in baking ovens where an even temperature is accurately maintained by pyrometers. The enamel is baked to a high lustrous finish, having a thoroughly tight coat with proper elasticity to guard against cracking in any bending or forming operation during installation.

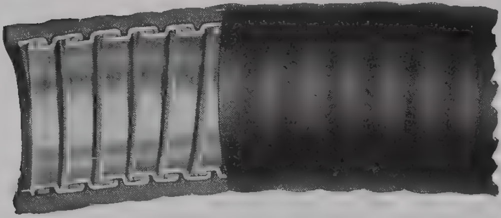
Conduit

Size In.	Per Foot	Diameter, Inches External	Diameter, Inches Internal	Thickness Inches	Threads per Inch	Wt. Lb. per Ft.
1/4	....	.540	.364	.088	18	.425
3/8	....	.675	.493	.091	18	.568
1/2	....	.840	.622	.109	14	.852
3/4	....	1.050	.824	.113	14	1.134
1	....	1.315	1.049	.133	11 1/2	1.684
1 1/4	....	1.660	1.380	.140	11 1/2	2.281
1 1/2	....	1.900	1.610	.145	11 1/2	2.731
2	....	2.375	2.067	.154	11 1/2	3.678
2 1/2	....	2.875	2.469	.203	8	5.819
3	....	3.500	3.068	.216	8	7.616
3 1/2	....	4.000	3.548	.226	8	9.202
4	....	4.500	4.026	.237	8	10.889
5	....	5.563	5.047	.258	8	14.810
6	....	6.625	6.065	.280	8	19.185

Size In.	Couplings Each	Couplings Wt. Lb. per 100	Elbows Each	Elbows Dimensions, In. Radius	Elbows Dimensions, In. Offset	Elbows Wt. Lb. per 100
1/4	....	6.0	....	3.850	6.375	41
3/8	....	9.5	....	3.917	6.437	55
1/2	....	11.6	....	4.000	6.500	82
3/4	....	20.9	....	4.500	7.250	109
1	....	34.3	....	5.750	8.750	201
1 1/4	....	53.5	....	7.250	10.500	313
1 1/2	....	74.3	....	8.250	11.750	441
2	....	120.8	....	9.500	13.500	707
2 1/2	....	172.0	....	10.500	15.000	1411
3	....	249.8	....	13.000	18.000	1850
3 1/2	....	424.1	....	15.000	20.500	2979
4	....	474.1	....	16.000	22.000	3528
5	....	700.0	....	24.000	31.000	6575
6	....	750.0	....	30.000	37.500	9645

American Sealtite Plastic Covered Electrical Wiring Conduit

Liquid-Tight and Flexible



For use wherever electrical wiring is exposed to moisture, oil, acid fumes, chemicals, grease and dirt, etc.

Uses liquid-tight connectors.

Nom. I.D.	Per 100 Feet	O.D. In. Min.	O.D. In. Max.	Approx. Bend Diam. Inches	Wt. Lb. per Foot	Nom. I.D.	Per 100 Feet	O.D. In. Min.	O.D. In. Max.	Approx. Bend Diam. Inches	Wt. Lb. per Foot
3/8	.....	.690	.710	5	.240	**1½**	.....	1.875	1.900	15	1.170
½	.....	.820	.840	6	.290	**2**	.....	2.350	2.375	17	1.550
¾	.....	1.030	1.050	9	.385	**2½**	.....	2.850	2.875	20	1.980
1	.....	1.290	1.315	10	.680	**3**	.....	3.470	3.500	27	2.820
1¼	.....	1.630	1.655	13	.860	**4**	.....	4.465	4.500	34	4.145

J-M Duxseal

Putty Type Compound

A non-hardening adhesive plastic sealing compound, made with an asbestos base. Used just as it comes from package. Sticks to any clean surface, is insoluble in water, unaffected by ordinary gases and condensates. An easy to use, all-purpose compound.

Used for sealing cable openings at the base of electric utility fixtures such as fire alarm boxes traffic lights, street lights and similar equipment to prevent the infiltration of gases from leaky gas mains and other underground sources.

Approximate weight per cubic foot, 100 pounds.

Furnished in 1-pound pugs in cartons of 60 and 5-pound pugs in cartons of 12.

1-Pound Pugs, Carton of 60	per pound	**$.60**
5-Pound Pugs, Carton of 12	per pound	**.45**

Y-er Eas

Wire Pulling Lubricant

For all types of electric cable insulations to facilitate pulling cable into conduits. Y-er Eas is a compounded white creamy substance which after performing its function, dries out and leaves a light film of powder.

Size Pail.................gallons	1	2	3	4
Per Pail	....	....	....	....
Approx. Shipping Weight..pounds	5	11	14	19

Slipknot Friction Tape

SLIPKNOT
FRICTION TAPE

This tape is extra adhesive, has no pin holes, and its tensile strength is unusually high. Packed in orange and blue containers.

Size Roll	1	2	4	8
Per Roll	....	....	....	....

Minerallac Insulating Compound

For Use in Cable Joints, Potheads and Terminal Bells

MINERALLAC
INSULATING
COMPOUNDS

High Voltage Compound

No. 1. A compound having the consistency of molasses. Not affected by moisture. Especially effective in drying out tape and cloth, and between layers of such materials when wound on high-voltage electrical apparatus.

No. 2A. Cable joint or pothead compound. Melting point, 82°C. One of the most important characteristics of this compound is its ability to adhere to metal or porcelain. Suitable for use in warm climates.

No. 64. A compound suitable for use in mild climates where there is no great variation in temperature. A hard compound with a melting point of approximately 93°C.

No. 78. Cable joint or pothead compound. Dense and adhesive with little shrinkage. Recommended as an all-purpose insulating material. Low moisture absorption; pliable. Recommended for voltages 600 and up. Melting point, 90°C. Dielectric strength 940 volts per mil at 30°C.

No. 80. Pothead compound. A hard compound for use on 600 volts and over. Melting point, 130°C. Tests 990 volts per mil at 30°C.

No. 104. A semi-solid compound for use in cable joints on high voltage lines over 600. Melting point, 50°C. Dielectric strength averages 800 volts per mil at 30°C.

No. 104A. A semi-solid compound with the same general characteristics as No. 104, except that it has a lower melting point (35°C). Average viscosity, 800 seconds at 100°C. For use on high voltage potheads and cable joints where a low melting point compound is required.

Size Container......gallons		½	1	2	5	*50
No. **1**	per gallon	**$3.25**	**$2.70**	**$2.65**	**$2.45**	**$2.15**
No. **2-A**	per gallon	**3.80**	**3.25**	**3.20**	**3.00**	**2.70**
No. **33**	per gallon	**4.40**	**3.85**	**3.55**	**3.30**	**3.00**
No. **64**	per gallon	**3.05**	**2.45**	**2.40**	**2.25**	**1.95**
No. **78**	per gallon	**2.75**	**2.20**	**1.90**	**1.60**	**1.00**
No. **80**	per gallon	**2.75**	**2.20**	**1.90**	**1.60**	**1.00**
No. **104**	per gallon	**2.75**	**2.20**	**1.90**	**1.60**	**1.00**
No. **104A**	per gallon	**2.75**	**2.20**	**1.90**	**1.60**	**1.00**

*50-gal. closed steel drum weighing approx. 400 pounds.

High Voltage Compound—Oil Insoluble

No. 33. For use in cable joints, potheads and terminals, and other electrical apparatus where a close seal against oil filtration is specified. For protection of transformer bushings on oil-filled transformers.

Size Container.................gallons	1	2	5
Per Gallon	**$3.85**	**3.55**	**3.30**

Seamless Bias Varnished Tape

Provided in convenient form for uses on coils, cables, and bus bar insulations, having all the valuable qualities of the cloth and giving absolute dependability.

Insures a smooth, uniformly protective insulating tape. Can be hand or machine applied, and special length coils are supplied for coil winding machines. Saves both time and money in application, as every inch is usable, and in service gives a better job, doing away with plain woven tapes, thus eliminating the need of impregnation.

Yellow and Black Varnished Tape

Standard rolls are 36 and 72 yards long.

Price per 144 Yards

Width In.	.005-Inch Thick Less Than 100 Sq. Yd.	.005-Inch Thick 100 Sq. Yd. and Over	.007-Inch Thick Less Than 100 Sq. Yd.	.007-Inch Thick 100 Sq. Yd. and Over	.010-Inch Thick Less Than 100 Sq. Yd.	.010-Inch Thick 100 Sq. Yd. and Over
½	**$.97**	**$.84**	**$1.01**	**$.88**	**$1.09**	**$.96**
¾	**1.46**	**1.26**	**1.52**	**1.32**	**1.64**	**1.44**
1	**1.90**	**1.64**	**1.98**	**1.72**	**2.14**	**1.88**
1¼	**2.44**	**2.10**	**2.54**	**2.21**	**2.75**	**2.41**
1½	**2.85**	**2.46**	**2.97**	**2.58**	**3.21**	**2.82**
1¾	**3.42**	**2.95**	**3.56**	**3.10**	**3.85**	**3.38**
2	**3.80**	**3.28**	**3.96**	**3.44**	**4.28**	**3.76**

Width In.	.012-Inch Thick Less Than 100 Sq. Yd.	.012-Inch Thick 100 Sq. Yd. and Over	.015-Inch Thick Less Than 100 Sq. Yd.	.015-Inch Thick 100 Sq. Yd. and Over
½	**$1.16**	**$1.03**	**$1.27**	**$1.14**
¾	**1.74**	**1.55**	**1.91**	**1.71**
1	**2.28**	**2.02**	**2.50**	**2.24**
1¼	**2.93**	**2.59**	**3.21**	**2.88**
1½	**3.42**	**3.03**	**3.75**	**3.36**
1¾	**4.10**	**3.63**	**4.50**	**4.03**
2	**4.56**	**4.04**	**5.00**	**4.48**

Cannot be aggregated with cloth, canvas, duck or silk.

Can be supplied packed in oil, prices upon application.

Following additional charges add to gross yard price for rolls other than standard rolls:

Width In.	18 to 24 Yd. Roll per 144 Yd.	8 to 17 Yd. Roll per 144 Yd.	Less Than 8-Yd. Roll per 144 Yd.
½	**$.02**	**$.10**	**$.20**
¾	**.03**	**.15**	**.30**
1	**.04**	**.20**	**.40**
1¼	**.05**	**.25**	**.50**
1½	**.06**	**.30**	**.60**
1¾	**.07**	**.35**	**.70**
2	**.08**	**.40**	**.80**

No. 27 Scotch Brand Electrical Tape

Glass Cloth Backing—Thermosetting Adhesive

SCOTCH
Electrical Tape
No. 27

For use where high heat conditions are normal. For many phases of motor construction. Used by builders of mine motors to splice all field coils, also for splicing external leads.

Backing is glass cloth, which is not harmed by high temperature, will not shrink, stretch or rot; has high tensile strength of 150 pounds per inch of width.

Adhesive thermosets at 250°F. for 2 hours or 300°F. for 1 hour and is not thereafter affected by high heat.

Thickness, .006 mils. Tensile strength, 150 pounds per inch. Elongation 5 per cent at break. Adhesion, 40 oz. per inch. Insulation resistance 1500 megohms, dielectric strength, 1500 volts; electrolytic corrosion, 1.0.

Packed 1 in a can, 12 to a carton.

No. **27**, Size, ½ Inch by 66 Feet............per roll **$1.75**

Boston A.S.T.M. Switchboard Matting

Assures against shock and serious industrial accidents.

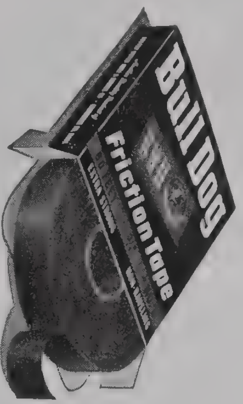
Has cloth insertion for long wear.

Dielectric strength, 40,000 volts.

Thickness, ¼ inch. Width, 24 or 36 inches. Roll length, 20–30 yards.

Bull Dog Friction Tape

For general commercial use; particularly adapted to electrical, auto accessory, and hardware trade.



Tacky and uniform in quality. Standard width, ¾-inch.

Widths other than ¾-inch furnished in cellophane only.

Size No.	*8	*4	†2	‡1
Min. Lgth. Roll.ft.	60	30	13	6
Rolls per Ship. Case	96	192	384	768

*Available in cellophane wrapped cartons, cellophane and labels, or cellophane only.

†Available only in display containers of 12 or 24 rolls.

‡Available only in display containers of 16 or 32 rolls.

Bull Dog Splicing Compound

Bull Dog
BWH
Splicing Compound

Designed for commercial service. Will withstand dielectric test of 7425 volts minimum. Tensile strength 200 pounds per square inch, minimum.

Color: black.

Standard width ¾-inch.

Widths other than ¾-inch furnished in cellophane only.

Packed in cellophane-wrapped cartons, cellophane only, or in cellophane and labels.

Size No.	8	4
Min. Lgth. Roll....feet	21	10½
Rolls per Case	96	192

No. 33 Scotch Brand Electrical Tape

ONE DOZEN JOB SIZE ROLLS
SCOTCH
No. 33
Electrical
Tape
PLASTIC

Black plastic backing for electrical and mechanical protection. Does work of two other conventional tapes and eliminates one operation. Resists water, oil, acid alkalies and corrosive chemicals. Flexible, molds snugly to any surface.

Thin, .007-inch thick; takes up minimum room in junction boxes.

High dielectric strength.

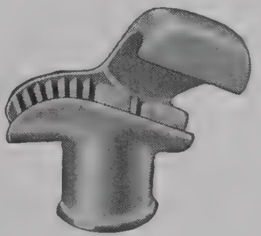
Packed 1 in a can, 12 cans in a carton.

No. **33**, Size, ¾ Inch by 66 Feet ....each **$1.50**

Available in Job Size Tube

12 Rolls, ¾-Inch by 20 Feet..................per roll **$.55**

Steel City Allen Heavy Wall Conduit Benders



This bender is made of high test steel. Has tempered case hardened teeth which grip in all positions.

Solid jaws, no adjustments; 2-in-1 design with V-receiving groove to prevent any contact on inner part of curve, thus preventing mashing, crushing or deforming the pipe.

No.	Each	Description	Size Conduit Inches	Std. Pkg.	Approx. Weight Pounds
1	.....	End Tapped 1″ Female	½– ¾	10	2½
6	.....	End Tapped 1¼″ Female	½– ¾	10	2½
2	.....	End Threaded 1½″ Male	¾–1¼	5	3¾
7	.....	End Tapped 1½″ Female	¾–1¼	5	4½

Republic ELECTRUNITE Benders

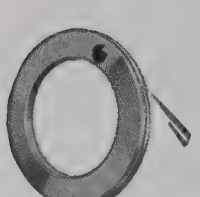
For Use with Inch-Marked ELECTRUNITE E.M.T.

A one-piece malleable iron casting.

Instructions and markings for making stubs, back-to-back bends, and offsets are built into side of bender.

No.	1472	1473	1474
Each	....	....	....
Size, inches	1/2	3/4	1
Pipe Handle Size, inches	3/4	3/4	1
Standard Package	10	10	2
Weight per 100, pounds	250	420	800

Ideal Fish Tape, Reels and Pullers



Three tools in one: a reel, a puller and a tape. Tape is pulled through the conduit and reeled in one operation; reel automatically locks tape in place. By keeping the tape reeled up, it is prevented from spreading all over the job, avoiding breakage and possibility of tape contacting live parts.

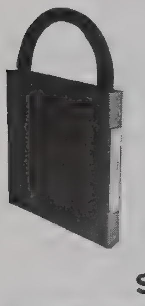
No.	Each	Tape Length Feet	Tape Size Inches
31-007	$2.75	50	1/8x.045(3/64)
31-008	4.05	50	1/8x.060(1/16)
31-009	6.90	100	1/8x.060(1/16)
31-011	8.30	100	1/4x.060(1/16)
31-016	10.15	200	1/8x.060(1/16)

Ideal Fish Tapes

Ideal Fish Tape is made of the highest grade of tempered spring steel wire—no curling. Tape is flexible and easy to use on long runs of conduit having several bends.

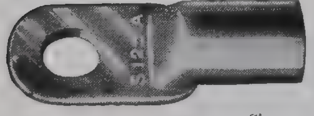
All sizes are available in any length, multiples of 50 feet.

Packed in individual cartons.



No.	Each	Tape Size
31-004	$1.50	50'x1/8"x.060(1/16)
31-036	2.70	100'x1/8"x.060(1/16)
31-038	5.30	200'x1/8"x.060(1/16)
31-050	4.30	100'x1/4"x.060(1/16)
31-052	8.60	200'x1/4"x.060(1/16)
31-078	1.25	50'x1/8"x.045(3/64)
31-079	2.50	100'x1/8"x.045(3/64)

Sherman Soldering Lugs



Made from high grade electrolytic copper. Seamless all around. Solder can not leak out at closed ends. Better conductivity is secured.

O.D. Inches	I.D. Inches	Size Hole Inches	Length Overall Inches	Amp. Cap. N.E.C.	Fits Wire Gage
*3/16	.136	11/64	15/16	25	10
1/4	.186	13/64	1 1/32	35	8
5/16	.232	13/64	1 7/32	50	6
3/8	.286	9/32	1 11/32	70	4
7/16	.336	9/32	1 1/2	90	2
1/2	.407	11/32	1 3/4	125	0
9/16	.461	13/32	2	150	00
5/8	.511	13/32	2 1/8	175	000

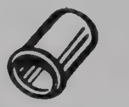
*The 3/16-inch size furnished square unless specified round. Remaining sizes furnished round unless specified square. Other sizes available; information on request.

Buchanan pres-SURE Solderless Connectors

Insures permanent trouble-free splices and wire terminations for stranded and solid wire. Eliminates bulky solder equipment and danger of shorts and grounds from punctured tape on soldered joints or from loose fixture type connectors.

Maximum electrical conductivity insured by one-piece all copper construction. Smooth bell mouthed wire openings provide maximum resistance to wire abrasion.

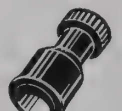
Splice Caps



Perfect pigtail joint insulation insured by plastic snap-on splice cap insulator with constant insulation thickness.

No.	Per 100	Wire Size No.	Type	Unit Pkg.	Standard Pkg.	Approximate Shipping Weight Pounds per 1000
2001	$.50	2-20 to 2-14	Closed	1000	5000	1
2001S	.50	2-20 to 2-14	Open End	1000	5000	1
2006	.80	2-18 to 4-12	Closed	500	1000	2 3/8
2006S	.80	2-18 to 4-12	Open End	500	1000	2 1/4
2011	2.05	3-12 to 3-8	Closed	250	1000	5 3/8
2011S	2.05	3-12 to 3-8	Open End	250	1000	4 3/4

Insulators



Instant visual inspection provided by red security ring. If ring is in locking position, it is a satisfactory installation.

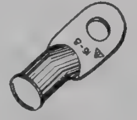
No.	2005	2012
Per 100	$1.25	2.60
For Splice Cap No.	2006, 2006S	2011, 2011S
Unit Package	500	250
Standard Package	1000	1000
Approx. Ship. Wt. per 1000...lb.	3 1/2	7 1/2

Snap-On Nylon Insulators

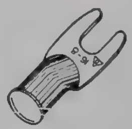
One piece construction. Assures fast factory perfect splice installation, even in extremely cold weather, even on extremely flexible wire.

No.	2007	2014
Per 100	$1.70	3.45
For Splice Cap No.	2006, 2006S	2011, 2011S
Unit Package	500	250
Standard Package	1000	1000
Approx. Ship. Wt. per 1000...lb.	3	4

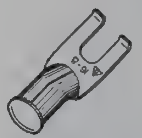
Termend Lugs



Ring Tongue



Spade Tongue



Locking Tongue

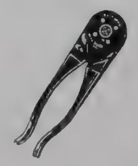
Installed with the same pres-SURE-tool. Provide for both single and multiple wire terminations.

For wire sizes 1 No. 16 to 1 No. 8.

Unit package, 250. Standard package, 1000.

Ring Tongue								
No.	Per 100	Stud Size No.	Approximate Shipping Weight Pounds per 1000	Spade Tongue No.	Locking Tongue No.	Per 100	Stud Size No.	Approx. Ship. Weight Pound per 1000
16-8-6	$2.25	6	4 3/4	16-8-6S	16-8-6L	$2.25	6	4
16-8-8	2.25	8	4 5/8	16-8-8S	16-8-8L	2.25	8	3 7/8
16-8-10	2.25	10	4 1/2	16-8-10S	16-8-10L	2.25	10	3 3/4
16-8-1/4	2.25	1/4"	4 1/4	....	....	....	..	...

pres-SURE tools



Provides 4-way pressure crimp.

Packaged one to a unit or standard package.

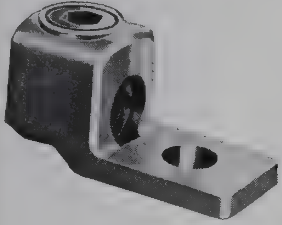
Approximate shipping weight, 1 pound.

No. C22A, For Nos. 2001 and 2001S Splice Caps Only	each	$5.90
No. C24, For Nos. 2006, 2006S, 2011 and 2011S Splice Caps and All Termends	each	5.90

T & B Lock-Tite Lugs

One Bolt Hole Tongue

Listed by Underwriters' Laboratories

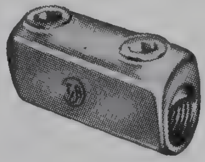


Lug is one-piece design. Uniform pressure all around provides direct contact and high conductivity. Easily installed with key wrench. Resists vibration because it is locked tight. Sturdy, overlapping cable shield nests in an oval-shaped recess in body. Shakeproof locking disc.

No.	Per 100	Cable Size	Unit Qty.	Std. Pkg.	Wt. Lb. per 100	Key Wrench No.	Key Wrench Per 100
31003UAL	$106.25	14 Sol. to 8 Sol.	18	108	8	30	$25.00
31005UAL	107.50	8 to 6 Sol. or Str.	18	108	5½	30	25.00
31007UAL	135.00	4 Sol. to 1 Str.	18	108	12	30	25.00
31009UAL	212.50	1 Sol. to 2/0	12	72	19	30	25.00
31011UAL	290.00	2/0 to 4/0	12	72	33	30	25.00
31013UAL	352.50	4/0 to 300	12	72	53	50	37.50
31015UAL	562.00	300 to 500	6	36	78	50	37.50
31017UAL	965.00	500 to 750	6	36	122	50	37.50
31019UAL	1125.00	750 to 1000	6	36	167	50	37.50

T&B Lock-Tite Two-Way Connectors

Listed by Underwriters' Laboratories



Cable Size No.	Connector No.	Connector Per 100	Key Wrench No.	Key Wrench Per 100	Std. Pkg.	Unit Qty.	Wt. Lb. per 100
4–1	32507	$192.50	30	$25.00	72	12	22
1–2/0	32509	290.00	30	25.00	36	6	36
2/0–4/0	32511	425.00	30	25.00	36	6	67
4/0– 300MCM	32513	590.00	50	37.50	36	6	84
300– 500MCM	32515	1007.50	50	37.50	18	3	101
500– 750MCM	32517	1637.50	50	37.50	18	3	153
750–1000MCM	32519	1937.50	50	37.50	18	3	193

T&B Hinjon Junior Tee-Parallel Taps

Approved by Underwriters' Laboratories

Will take any type wire, cable, or tubing that will go into the fitting.

Installation consists of skinning the main, inserting the branch and tightening. Tightening locks the threads; vibration-proof.

Made of high conductivity bronze.

No.	Per 100	Cable Size Main	Cable Size Branch	Std. Pkg.	Unit Qty.	Wt. Lb. Per 100
35107	$181.25	No. 8 to 4	No. 14 to 8	72	12	7
35108	202.50	No. 8 to 4	No. 8 to 4	72	12	8
35109	225.00	No. 4 to 1/0	No. 14 to 4	72	12	12
35110	267.50	No. 4 to 1/0	No. 4 to 1	72	12	17
35111	315.00	1/0 to 4/0	No. 14 to 4	72	12	21
35112	337.50	1/0 to 4/0	No. 8 to 1	72	12	31
35113	380.00	4/0 to 300	No. 14 to 4	36	6	21
35114	412.50	4/0 to 300	No. 8 to 1	36	6	33
35115	525.00	300 to 500	No. 14 to 4	36	6	34
35116	625.00	300 to 500	No. 8 to 1	36	6	46
35118	800.00	500 to 750	No. 14 to 1	18	3	71
35120	1087.50	750 to 1000	No. 14 to 1	18	3	67

T&B Lock-Tite Tee-Parallel Taps

Approved by Underwriters' Laboratories

Does the work of 264 conventional type tee and parallel taps. Takes any type wire within its range as well as round or tubular bus of equivalent diameters. Body sizes open wide to allow easy assembly to main and branch.

One-piece; no detachable parts.

Can be used in any position: the branch can be run above, below or alongside the main on a parallel job; above, or below the main on a tee job, by swinging the tap to desired position.

No.	Cable Size Main		Cable Size Branch	Per 100
35003	1/0 to 4/0	......	No. 2 Solid & Strand to No. 1	$362.50
35005	1/0 to 4/0	......	1/0 to 4/0..................	425.00
35007	4/0 to 300	MCM	No. 2 Solid & Strand to 1/0..	425.00
35009	4/0 to 300	MCM	2/0 to 300 MCM............	600.00
35011	300 to 500	MCM	No. 2 Solid & Strand to 3/0..	700.00
35013	300 to 500	MCM	4/0 to 500 MCM............	900.00
35015	500 to 750	MCM	No. 2 Solid & Strand to 3/0..	1075.00
35017	500 to 750	MCM	4/0 to 500 MCM............	1375.00
*35019	500 to 750	MCM	500 to 750 MCM............	1675.00
35021	750 to 1000	MCM	No. 2 Solid & Strand to 3/0..	1110.00
35023	750 to 1000	MCM	4/0 to 500 MCM............	1337.50
*35025	750 to 1000	MCM	500 to 750 MCM............	1525.00
*35027	750 to 1000	MCM	750 to 1000 MCM...........	1625.00

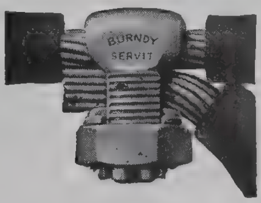
*With 2 clamping screws.

Packing

No.	Std. Pkg.	Unit Qty.	Weight per 100	No.	Std. Pkg.	Unit Qty.	Weight per 100
35003	36	6	38	35017	18	3	358
35005	36	6	55	35019	18	3	410
35007	36	6	43	35021	18	3	113
35009	36	6	94	35023	18	3	258
35011	36	6	83	35025	18	3	371
35013	36	6	139	35027	18	3	460
35015	18	6	101	.....	..	..	...

Burndy Servits

For Copper Conductors



Type KS

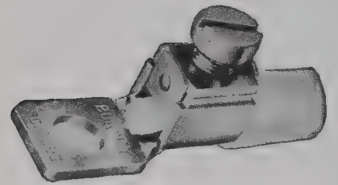
Type KS. A high copper alloy service connector. High pressure contact. Sizes 10 through 1000MCM are listed by Underwriters' Laboratories.

Type KSO. Same as Type KS, except has a nut retainer which prevents nut pressure bar assembly from dropping free when connector is disassembled.

Type KS No.	Type KS Per 100	Type KSO No.	Type KSO Per 100	Wire Size A.W.G. Solid	Wire Size A.W.G. Stranded	No. in Ctn.	Approx. Ship. Wt., Lb. per 100
KS90	......	....	......	10	12	100	2.3
KS15	......	....	......	8	8	100	3.3
KS17	......	KSO17	......	6	7	100	5.3
KS20	......	KSO20	......	4	5	100	8.0
KS22	......	KSO22	......	2	3	100	11.0
KS23	......	KSO23	......	1	2	100	12.0
KS25	......	KSO25	......	2/0	1/0	50	17.0
KS26	......	KSO26	......	3/0	2/0	25	28.0
KS28	......	KSO28	......	4/0	4/0	25	53.0
KS31	......	....	......	...	350MCM	12	93.0
KS34	......	....	......	...	500MCM	12	135.0
KS39	......	....	......	...	750MCM	6	200.0
KS44	......	....	......	. .	1000MCM	6	290.0

Type KPA Burndy Scrulugs

Listed by Underwriters' Laboratories

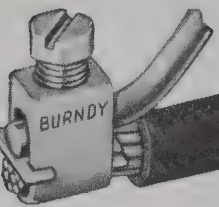


For terminating cables at safety switches, relays, electric control equipment, etc. Internal pressure bar equalizes pressure over conductor. Tin plated for use with aluminum and copper.

No.	Per 1000	Cable Size A.W.G. Min.	Cable Size A.W.G. Max.	*N.E.C. Conductor Rating	No. in Ctn.	Approx. Ship. Wt., Lb. per 1000
KPA8C	....	14Sol.	8Str.	55A	100	23
KPA4C	....	14Sol.	4Str.	105A	100	35
KPA25	....	4Str.	1/0Str.	195A	100	80
KPA28	....	1/0Str.	4/0Str.	300A	25	250
KPA34	....	4/0Str.	500MCM	515A	18	500

*Type R insulation, single copper conductor in free air.

Burndy Buttins



Type KPK

Packed 100 in a carton.

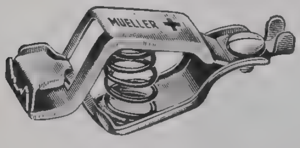
Type KP. For copper wire or cable. For connections between service drop conductors and house entrance leads.

Type KPK. For copper or aluminum wire or cable. Made of copper alloy with tin plated construction to prevent galvanic corrosion.

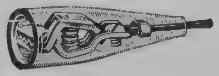
	Type KP		Type KPK
No.	KP6C	KP4C	KPK4C
Per 100	**$12.93**	**16.84**	**23.41**
Max. Cond.: Copper—Solid	5	3	4
Stranded	6	4	6
Aluminum—Solid	...	...	3
Stranded	...	...	4
Approx. Ship. Wt. per 100.....lb.	2½	4¾	5

Note: with aluminum conductors, use Penetrox A.

Mueller Universal Test Clips and Insulators



No. 24-A Clip Only



No. 45 Clip with No. 47 Insulator

Clips save time in work requiring quick temporary connections. Insulators are a convenient protection against electric shock and prevent clips from shorting on each other. Half red and half black indicates polarity. Packed 10 to a box; 10 boxes to carton.

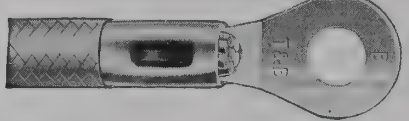
Clips

No.	Each	Description	Lgth. Clip In.	Jaws Sprd. In.	Wt. Lb. 100
11-C	**$1.54**	200-Amp., with Lug, Solid Copper	6	1¾	41
11-A	**.88**	100-Amp., with Lug, Lead Plated	6	1¾	38
21-C	**.83**	100-Amp., with Lug, Solid Copper	4½	1⅛	18
21-A	**.36**	50-Amp., with Screw, Lead Plated	4	1⅛	15
24-C	**.31**	50-Amp., with Screw, Solid Copper	2⅞	⅞	7
24-A	**.18**	25-Amp., with Screw, Lead Plated	2⅞	¾	6¼
27	**.11**	20-Amp., with Screw, Cad. Plated	2 7/16	½	3¼
27-C	**.20**	40-Amp., with Screw, Solid Copper	2 7/16	½	3½
33-C	**3.00**	300-Amp., with Lug, Solid Copper	7¾	2⅛	80
45	**.07**	Pee-Wee, with Screw, Cad. Plated	1½	5/16	1¼
45-C	**.12**	Solid Copper, with Brass Screw, Phosphor Bronze Spring	1½	¼	1¼
48-B	**.09**	With Screw, Cadmium Plated	2	7/16	2
48-C	**.14**	Solid Copper, with Screw	2	7/16	2
50-C	**.25**	Needle Clip, Solid Bronze with Brass Conn.	2¼	½	2½
51-C	**.19**	Solid Bronze Clip with Screw Conn.	2¼	½	2½

Insulators

No.	Each	Description	Wt. Lb. per 100
13	**$.77**	Insulator for Clips 11-C and 11-A	23
23	**.42**	Insulator for Clips 21-C and 21-A	8
26	**.25**	Insulator for Clips 24-C and 24-A	7
29	**.17**	Insulator for Clips 27 and 27-C	4
35	**2.12**	Insulator for Clip 33-C	45
47	**.07**	Insulator for Clips 45 and 45-C	1
49	**.10**	Insulator for Clips 48-B, 48-C, 50-C and 51-C	2

T & B Sta-Kon Solderless Terminals



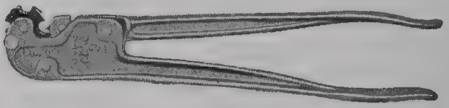
Secure mechanical grip on wire produced by pressure of stake-mark, which parallels strands.

Wire Size A.W.G.	No.	Per 100	Carton	Std. Pkg.	Wt. Lb. per 1000
22, 20, 18	**A18-6**	**$4.63**	100	1000	2
22, 20, 18	**A18-8**	**4.63**	100	5000	2
22, 20, 18	**A18-10**	**4.63**	100	1000	2
22, 20, 18	**A18-14**	**4.63**	100	5000	3
20, 18, 16, 14	**B14-6**	**4.63**	100	2000	2½
20, 18, 16, 14	**B14-8**	**4.63**	100	2000	3
20, 18, 16, 14	**B14-10**	**4.63**	100	2000	2
20, 18, 16, 14	**B14-14**	**4.63**	100	2000	6
16, 14, 12, 10	**C10-6**	**6.25**	50	5000	4
16, 14, 12, 10	**C10-8**	**6.25**	50	5000	5
16, 14, 12, 10	**C10-10**	**6.25**	50	1000	5
16, 14, 12, 10	**C10-14**	**6.25**	50	1000	7
16, 14, 12, 10	**C10-38**	**6.25**	50	5000	7
16, 14, 12, 10	**C10-516**	**6.25**	50	1000	8
9, 8, 7	**D8-10**	**12.50**	25	500	16
9, 8, 7	**D8-14**	**12.50**	25	500	14
9, 8, 7	**D8-38**	**12.50**	25	500	14
9, 8, 7	**D8-516**	**12.50**	25	500	16
6, 5	**E6-10**	**13.75**	20	200	17
6, 5	**E6-14**	**13.75**	20	200	20
6, 5	**E6-516**	**13.75**	20	200	20
6, 5	**E6-38**	**13.75**	20	200	20
4, 3	**F4-10**	**18.75**	20	200	24
4, 3	**F4-14**	**18.75**	20	200	25
4, 3	**F4-516**	**18.75**	20	200	25
4, 3	**F4-38**	**18.75**	20	200	25
2, 1	**G1-14**	**31.25**	10	100	50
2, 1	**G1-516**	**31.25**	10	100	50
2, 1	**G1-38**	**31.25**	10	100	50
		Series H to M			
1/0	**H10-14**	**40.00**	10	100	50
2/0	**J20-38**	**45.00**	10	100	70
3/0	**K30-38**	**52.00**	5	50	82
4/0	**L40-38**	**67.50**	5	50	100
250MCM	**M250-38**	**77.50**	5	50	135

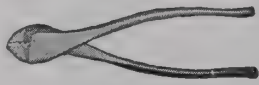
T&B Sta-Kon Two and Four-Way Connectors

	Two-Way					Four-Way				
Wire Size A.W.G.	No.	Per 100	Carton	Std. Pkg.	Wt. Lb. per 1000	No.	Per 100	Carton	Std. Pkg.	Wt. Lbs. per 1000
22,20,18	**2A18**	**$7.00**	100	1000	2½	**4A18**	**$16.50**	50	500	5
20-14	**2B14**	**7.00**	100	1000	3½	**4B14**	**16.50**	50	500	6
16-10	**2C10**	**10.00**	50	500	7	**4C10**	**20.75**	25	250	13
9,8,7	**2D8**	**18.00**	25	250	19	.....	......	..	...	..
6,5	**2E6**	**19.50**	20	200	27	.....	......	..	...	..
4,3	**2F4**	**23.75**	15	150	36	.....	......	..	...	..

T&B Sta-Kon Hand Tools



No. WT-115



No. WT-111M

Used to install Sta-Kon Terminals. Every tool accommodates several sizes of terminals and tips.

Standard package, 1.

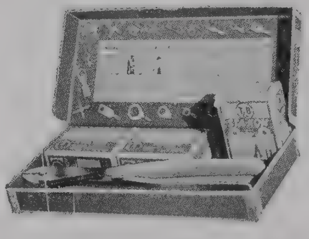
No.	WT-110M	WT-111M	WT-115
Each	**$8.75**	**7.50**	**45.00**
For Use on Wire Nos.	22 to 10	22 to 10	8 to 1
Color of Handle	One Green	Red	Black
Weight.........pounds	¾	¾	3½

No. WT-116 Holders

Bench adapter for No. WT-115 Sta-Kon hand tools.

No. **WT-116**, Std. Pkg. 1, Wt. 2½ Lb.........each **$5.00**

No. 20WJ T & B Sta-Kon Terminal Kits



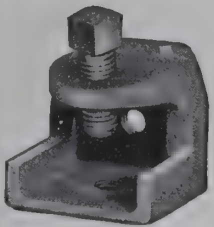
Designed for work on electric wires No. 22 to 10 inclusive.

Contents

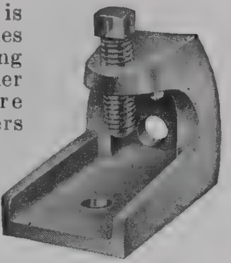
One carton of 100 No. A18-10 terminals for wire size Nos. 22 to 18 to fit Nos. 8 or 10 bolt. One carton of 100 No. B14-10 terminals for wire size Nos. 20 to 14 to fit Nos. 8 or 10 bolt. One carton of 50 No. C-10-10 terminals for wire size Nos. 16 to 10 to fit Nos. 8 or 10 bolt. One No. WT-111M Sta-Kon hand tool is furnished.

No. **20**....................................each **$20.00**

Steel City Universal Insulator Supports



Nos. 500, 501 502 and 503



Nos. 505 and 506

This support is for use where lines are to be run along steel girders, under roofs, or where cramped quarters will not permit nailing up insulators.

Malleable iron; electro galvanized or sherardized, with cupped steel set screws. Furnished with leather washers. Standard tapped but can be tapped as specified at no extra cost.

No.	Per 100	Standard Tapping	Size In.	Jaw Open. In.	Std. Pkg.	Approx. Wt. Lb. per 100
500	......	¼-20	1	¾	100	20
509	......	10-24	1	¾	100	20
501	......	5/16-18	1½	¾	100	50
502	......	⅜-16	2	⅞	50	86
503	......	½-13	2½	⅞	50	150
507	......	½-13	2½	1¼	50	150
508	......	½-13	2½	2	50	188

Long Base

No.	Per 100	Standard Tapping	Size In.	Jaw Open. In.	Std. Pkg.	Approx. Wt. Lb. per 100
***505**	......	*10-24	1½	¾	100	75
506	......	10-24, ½-13	2	1	100	117

*⅜-inch clearance.

Accessories

Furnished only when specified and at additional cost. If desired, specify number of accessory. Standard package, 100.

Machine Screws

Screws not listed are also available; prices on request.

No.	Per 100	Size In.	Description	Std. Insulator No.	Universal Insulator Support Recommended
600	....	2¼	No. 10-24 Flat Head	5½ Split	509
601	....	2	No. ¼-20 Flat Head	5½	500
602	....	2¼	No. 5/16-18 Flat Head	4½	501
603	....	3¼	No. ⅜-16 Flat Head	1	502
604	....	2½	No. ⅜-16 Rd. Head	2, 26 & 30	502
606	....	2½	No. ⅜-16 Flat Head	3 W.G. & 3½	502
607	....	2¼	No. ⅜-16 Rd. Head	24	502
608	....	2	No. ½-13 Machine Bolt	49	503
609	....	2¾	No. 5/16-18 Flat Head	33 Sect. 9420	501 502
621	....	2½	No. ¼-20 Flat Head	9419	501
624	....	3½	No. ½-13 Machine Bolt	53	503
625	....	3	No. ⅜-16 Machine Bolt	52	503
626	....	3¼	No. ½-13 Machine Bolt	52	503

Cleat Attachments

No.	Per 100	B&D Cleats No.	Support Recommended	B & D Cleat Attachments	Thrds. per Inch
510	....	1	501	Type A No. 1	18
511	....	1½	501	Type A No. 1½	18
512	....	2	502	Type A No. 2	16
513	....	2½	502	Type A No. 2½	16
514	....	3	502	Type A No. 3	16
514A	....	3½	503	Type A No. 3½	13
516	....	4	503	Type A No. 4	13
517	....	4½	503	Type A No. 4½	13

Wooden Pins

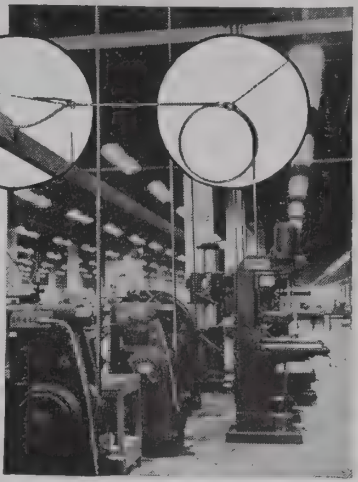
615	....	†Insulator	503	‡For 1-In. Pin Hole	13

†Double-groove, double petticoat glass insulators.

‡Paraffin treated 4¾ inches high, 1½-inch base, with bolt 5 inches long.

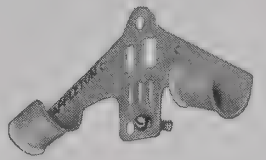
Appleton Bus Duct Power Cable Clamps

For Exposed Industrial Branch Feeder Installations



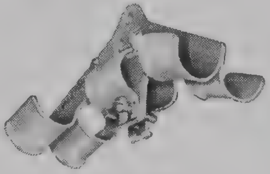
Designed to support the power cable that is used to provide flexible and extensible connecting circuits between overhead fixed bus structures and machinery. Only one clamp is used and covers the entire cable range. One single cable clamp is applicable when a single 90° bend is desired. By use of two single clamps, placed back to back, a loop in the cable can be cradled thus attaining extra footage to be used when shifting machines for more equipment. Galvanized.

Quarter-Bend Cable Clamps and Straps



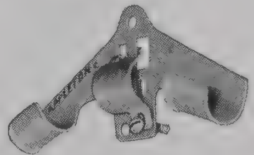
No. 18992

No. 18992. Single with strap. Range, .437 to 1.187-inch diameter. Carton, 25; standard package, 50. Weight per 100, 65 pounds.
No. **18992**........per 100 **$113.35**



No. 18993

No. 18993. Double with two straps. Range, .437 to 1.187-inch diameter. Carton, 25; standard package, 50. Weight per 100, 103 pounds.
No. **18993**........per 100 **$226.70**



No. 18990

No. 18990. Body. Range, .437 to 1.187-inch diameter. Carton, 25; standard package, 50. Weight per 100, 50 pounds.
No. **18990**.........per 100 **$93.35**

No. 18991

No. 18991. Strap. Range, .437 to 1.187-inch diameter. Carton, 25; standard package, 50. Weight per 100, 15 pounds.
No. **18991**.........per 100 **$20.00**

Mooring Cable Clamps

Clamp

No. 18995. Range, .437 to .875-inch diam.

No. 18997. Range, .875 to 1.187-in. diam.

No.	**18995**	**18997**
Per 100	**$80.00**	**101.35**
Carton	25	25
Standard Package	50	50
Weight per 100.....pounds	25	50

Cable Connectors

Connector

No. 15233. Range, .437 to .687-in. diam.

No. 15234. Range, .437 to 1.000-in. diam.

No. 15235. Range, .562 to 1.312-in. diam.

No.	**15233**	**15234**	**15235**
Per 100	**$24.65**	**35.30**	**53.30**
Fits Knockout..in.	¾	1	1¼
Carton	20	5	5
Std. Pkg.	40	20	20
Wt. per 100.....lb.	20	24	27

Appleton 1-Screw Conduit Clamps

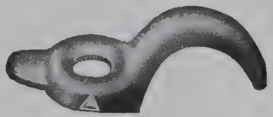
Schedule CF

For Rigid Conduit (Heavy-Wall)

Cadmium

Only one screw or bolt required to fasten clamp and hold it securely to conduit. Sharp edges on that part of clamp which fits over conduit serve to hold conduit rigid.

Steel



No.	Size In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
7148	¼	100	100	3	7151	¾	100	100	8
7149	⅜	100	100	3	7152	1	100	100	9
7150	½	100	100	5	7153	1¼	10	40	7

Malleable

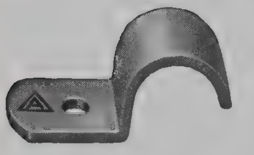
No.	Size In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
17148	¼	100	100	3	17154	1½	10	40	16
17149	⅜	100	100	3	17155	2	5	20	14
17150	½	100	100	11	17156	2½	5	20	25
17151	¾	100	100	13	17157	3	5	20	36
17152	1	100	100	21	17158	3½	5	10	24
17153	1¼	10	40	14	17159	4	5	10	29

Appleton One-Screw Heavy Stamped Steel Clamps

Schedule CF

For Rigid Conduit (Heavy Wall)

Cadmium

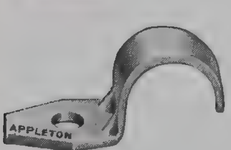


No.	Size In.	Carton	Std. Pkg.	Wt., Lb. Std.Pkg.
17248	¼	100	500	9
17249	⅜	100	500	9
17250	½	100	100	11
17251	¾	100	100	12
17252	1	100	100	23
17253	1¼	10	40	14
17254	1½	10	40	20
17255	2	5	20	16
17256	2½	5	20	16
17257	3	5	10	14
17258	3½	5	10	18
17259	4	5	10	22

Appleton One-Screw Malleable and Steel Clamps

Schedule TW

For Electrical Metallic Tubing (Threadless Thin-Wall Conduit)



Malleable

Cadmium

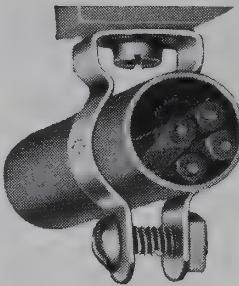
No.	Size In.	Carton	Std. Pkg.	Wt., Lb. per 100
171T49	⅜	200	2000	3
171T50	½	100	500	3¾
171T51	¾	100	100	5½
171T52	1	100	100	7
171T53	1¼	20	40	11
171T54	1½	20	40	15
171T55	2	5	20	17

Steel

No.	Size Inches	Carton	Std. Pkg.	Wt., Lb. per Pkg.
172T50	½	500	2000	57
172T51	¾	200	2000	65

Minerallac Cable and Conduit Hangers

Listed by Underwriters' Laboratories



Made of zinc-plated steel or Everdur alloy.

Quickly installed to run open wiring, cable and conduit with a more compact arrangement.

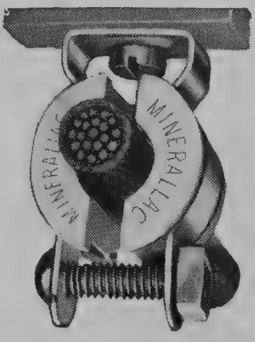
For voltages above 550 volts, the hanger should be used with insulated bushings.

Prices do not include stove bolts.

	Steel		Everdur		For Conduit Size, In.		For Cable or Conduit, O.D. Inches		
No.	Per Std. Pkg.	Wt. Lb. Std. Pkg.	Per Std. Pkg.	Wt. Lb. Std. Pkg.	Rigid	Thin Wall	Min.	Max.	Std. Pkg.
0	$4.50	5	$13.50	5¼	½,⅜	½	.625	.844	100
1	5.00	6½	15.00	7¼	¾	¾	.812	1.062	100
2	6.65	8	19.95	8¾	1	1	1.062	1.344	100
2½	7.00	8¾	21.00	9½	.....	1¼	1.281	1.50	100
3	7.25	10	21.75	11	1¼	1½	1.50	1.688	100
4	8.95	16	31.50	17¾	1½	...	1.688	1.969	100
5	9.65	11¾	40.00	12½	2	2	2.219	2.469	50
6	10.70	13¾	47.15	14¾	2½	...	2.688	3.00	50
7	11.95	8¼	51.00	9	3	...	3.250	3.75	25
8	14.00	10	56.00	11	3½	...	.....	.....	25

Minerallac Porcelain Bushings

For Cable Hangers



Used on cable hangers when working with voltages of 550 volts and above.

Provides the requisite dielectrical and structural strength.

One pair required per hanger.

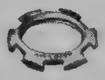
No.	Per Std. Pkg.	For Cable O.D. Inches Min.	Max.	Std. Pkg.	Wt. Lb. Std. Pkg.
1	$14.60	5/16	⅝	100	8
2	18.00	⅝	⅞	100	9½
3	21.00	⅞	1 3/16	100	15
4	23.65	1 3/16	1½	100	22
5	29.50	1½	1 11/16	100	49
6	32.50	1 11/16	2⅛	100	60

Appleton Tiger-Grip Drive Nuts

Schedule LB

Galvanized

Listed by Underwriters' Laboratories, Inc.



Top View

Bottom View

Non-Slip Notches

Heavy gage metal; heavily plated to resist rust. Full amount of threads; proper thickness. Non-slip notches prevent screw driver and wrench slippage. Gripping teeth under each lug gives perfect ground when tightened secure to junction box. Will not loosen through vibration.

Steel

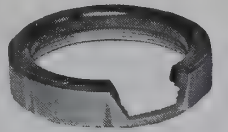
No.	Size In.	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.	No.	Size In.	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
BL38	⅜	100	2500	30	BL125	1¼	50	200	12
BL50	½	100	2500	30	BL150	1½	50	200	14
BL75	¾	100	1000	21	BL200	2	25	50	7
BL100	1	50	500	21	......	...	..	...	..

Malleable

No.	Size In.	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.	No.	Size In.	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
BL250	2½	25	50	10	BL400	4	5	20	8
BL300	3	10	50	14	BL500	5	2	10	9
BL350	3½	5	20	7	BL600	6	2	10	14

O.Z. Insulated Conduit Bushings

Listed by Underwriters' Laboratories



Illustrates How Insulating Material Is Molded and Locked into the Casting

A bushing designed for prevention of grounds using bakelite as an insulator. Casting made of malleable iron.

Conduit Size In.	Std. Pkg.	Type B Cadmium Plated No.	Per 100	Approx. Wt. Lb.	Type HB Hot Dipped Galv. No.	Per 100	Approx. Wt. Lb.	Type RB Bronze No.	Per 100	Approx. Wt. Lb.
½	100	B50	$15.80	.04	HB50	$21.35	.04	RB50	$31.65	.04
¾	50	B75	30.00	.06	HB75	35.55	.06	RB75	52.75	.07
1	25	B100	45.25	.11	HB100	53.60	.11	RB100	68.60	.12
1¼	20	B125	60.40	.15	HB125	68.75	.15	RB125	95.00	.16
1½	20	B150	75.70	.18	HB150	84.05	.18	RB150	116.10	.20
2	10	B200	105.55	.30	HB200	116.65	.30	RB200	211.10	.33
2½	10	B250	144.45	.48	HB250	158.35	.48	RB250	232.20	.53
3	5	B300	200.00	.80	HB300	216.65	.80	RB300	311.35	.88
3½	5	B350	255.55	.98	HB350	277.75	.98	RB350	411.10	1.10
4	5	B400	322.20	1.30	HB400	344.45	1.30	RB400	527.75	1.40
4½	1	B450	425.00	1.50	HB450	465.00	1.50	RB450	685.00	1.90
5	1	B500	600.00	2.30	HB500	665.00	2.30	RB500	940.00	2.50
6	1	B600	925.00	3.00	HB600	1025.00	3.00	RB600	1460.00	3.30

Anti-Short Bushings

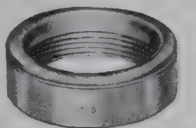
No.	Per Bag	For Use With A.B.C. Armored Cable	For Use With A.B.C. Armored Lampcord	For Use With Flex-steel Conduit	No. in Bag	No. Bags to Ctn.
1	...	14/3, 12/2, 6/1, 4/1	16/4, 14/2	⅜″	35	30
2	...	12/3, 12/4, 10/2, 10/3, 2/1	....	...	35	30

T&B Insulating End Bushings

Used to provide a smoothly rounded insulated surface, protecting wires against possible abrasion and shorts where wires emerge from conduit. Especially useful where conduit terminates in switch or junction boxes and also on conduit runs terminating behind switch boards, at motors, etc.

Formed from solid insulating material of the strongest and most durable type available; unaffected by normal heat, moisture and corrosive agents.

Deep Type—Threaded for ½ to 6-Inch Conduit



For ends of conduit at switchboards, motors, etc. Can be used with insulating inserts.

Long threads and rugged design assure against breakage.

No.	Each	Size In.	Dimen. In. Dpth.	Dimen. In. Diam.	Std. Pkg.	Wt. Lb. per 100	No.	Each	Size In.	Dimen. In. Dpth.	Dimen. In. Diam.	Std. Pkg.	Wt. Lb. per 100
70D	$.41	½	¾	1⅛	50	2	75D	$1.75	2	¹⁵⁄₁₆	2¾	10	10
71D	.50	¾	¾	1⁵⁄₁₆	50	2½	76D	3.40	2½	1¼	3¼	5	20
72D	.69	1	⅞	1⅝	50	5½	77D	3.60	3	1¼	3⅞	5	20
73D	1.09	1¼	⅞	2	10	7½	78D	4.55	3½	1¼	4⅜	5	25
74D	1.29	1½	⅞	2¼	10	7½	79D	7.00	4	1¼	5	5	25

Shallow Type—Threaded for ½ to 6-Inch Conduit

Cut down design; will fit in limited spaces such as inside of junction and switch boxes. Where insulating inserts required, deep type recommended.

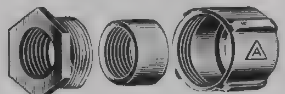
No.	Each	Size In.	Dimen. In. Dpth.	Dimen. In. Diam.	Std. Pkg.	Wt. Lb. per 100	No.	Each	Size In.	Dimen. In. Dpth.	Dimen. In. Diam.	Std. Pkg.	Wt. Lb. per 100
70S	$.30	½	½	1⅛	50	1½	75S	$1.55	2	⁹⁄₁₆	2¾	10	7½
71S	.40	¾	½	1⁵⁄₁₆	50	1½	76S	3.10	2½	¾	3¼	5	15
72S	.60	1	⁹⁄₁₆	1⅝	50	2½	77S	3.30	3	¾	3⅞	5	15
73S	.90	1¼	⁹⁄₁₆	2	10	5	78S	3.80	3½	¾	4⅜	5	20
74S	1.05	1½	⁹⁄₁₆	2¼	10	5	79S	4.15	4	¾	5	5	25

Appleton Conduit Fittings

Schedule CF

Conduit Couplings For Rigid Conduit (Heavy-Wall)

Cadmium

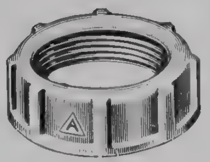


No.	Size In.	Carton	Std. Pkg.	Wt. Lb. per 100	No.	Size In.	Carton	Std. Pkg.	Wt. Lb. per 100
18801	½	50	100	24	18807	2½	5	10	380
18802	¾	10	40	34	18808	3	5	10	420
18803	1	5	20	52	18809	3½	2	5	520
18804	1¼	5	20	92	18810	4	2	5	620
18805	1½	5	20	116	18812	5	1	2	900
18806	2	5	20	195	.....	...	.	..	...

Appleton Conduit Bushings

Schedule LB

Galvanized



Bushings are furnished with galvanized finish only.

Bushings cannot be assorted to make up a standard package.

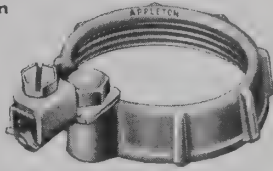
No.	Size In.	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
BU38	⅜	100	2500	55
BU50	½	100	2500	55
BU75	¾	100	1000	37
BU100	1	50	500	32
BU125	1¼	50	200	21
BU150	1½	50	200	26
BU200	2	25	100	36
BU250	2½	10	50	30
BU300	3	10	50	35
BU350	3½	5	20	18
BU400	4	5	20	26
BU500	5	2	10	16
BU600	6	2	10	21

Appleton Malleable Grounding Bushings

Schedule GF

Cadmium

Locking



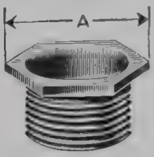
Non-Locking

Locking Type Size In.	No.	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.	Non-Locking Type Size In.	No.	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
½	9450M	50	100	5	2½	9456M	5	10	4½
¾	9451M	50	100	7	3	9457M	5	10	6½
1	9452M	25	50	5	3½	9458M	1	5	4½
1¼	9453M	25	50	6¼	4	9459M	1	5	6
1½	9454M	25	50	7¾	...	......	..	..	...
2	9455M	10	25	6	...	......	..	..	...

Appleton Conduit Nipples

Schedule CF

Cadmium

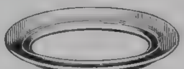


No.	Size In.	A In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	A In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
CF-7200	⅜	¹³⁄₁₆	50	100	3	CF-7117	2	2⅞	5	10	5
CF-7201	½	1	50	100	4	CF-7118	2½	3½	5	10	6½
CF-7202	¾	¹⁵⁄₁₆	50	100	8	CF-7119	3	4⅜	1	5	5
CF-7203	1	1¹¹⁄₁₆	10	40	6	CF-7120	3½	4⅝	1	5	6½
CF-7115	1¼	2⅛	5	20	5	CF-7121	4	5³⁄₁₆	1	5	7½
CF-7116	1½	2⁵⁄₁₆	5	20	6	CF-7123	5	6⁵⁄₁₆	1	5	10½

Appleton Cupped Reducing Washers

Schedule CF

Cadmium



For reducing the knockouts in outlet boxes, cabinets, etc.

No.	Size Inches	Car-ton	Std. Pkg.	Wt. Lb. per 100	No.	Size Inches	Car-ton	Std. Pkg.	Wt. Lb. per 100
7336	¾ to ½	250	500	2	**7344**	1½ to ¾	50	100	9
7337	1 to ¾	125	250	3	**7345**	1½ to ½	50	100	10
7338	1 to ½	125	250	4	**7346**	2 to 1½	50	100	5
7339	1¼ to 1	125	250	5	**7347**	2 to 1¼	50	100	6
7340	1¼ to ¾	125	250	6	**7348**	2 to 1	50	100	7
7341	1¼ to ½	125	250	7	**7349**	2 to ¾	50	100	8
7342	1½ to 1¼	50	100	7	**7350**	2 to ½	50	100	9
7343	1½ to 1	50	100	8	....	....	..	....	..

Appleton Reducers

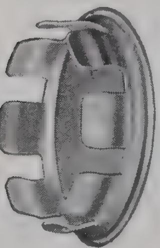
Schedule CF

Threaded

Cadmium

Used to reduce conduit fittings from larger to smaller sizes, as shown.

No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lb. per 100
RB 50– 38	½– ⅜	50	100	4
RB 75– 50	¾– ½	50	100	5
RB100– 50	1 – ½	25	100	12
RB125– 50	1¼– ½	25	100	33
RB150– 50	1½– ½	25	50	40
RB200– 50	2 – ½	5	25	65
RB100– 75	1 – ¾	25	100	9
RB125– 75	1¼– ¾	25	100	24
RB150– 75	1½– ¾	25	50	36
RB200– 75	2 – ¾	5	25	70
RB125–100	1¼–1	25	100	14
RB150–100	1½–1	25	50	29
RB200–100	2 –1	5	25	52
RB150–125	1½–1¼	25	50	15
RB200–125	2 –1¼	5	25	50
RB200–150	2 –1½	5	25	38
RB250–150	2½–1½	5	25	87
RB300–150	3 –1½	5	25	125
RB250–200	2½–2	5	25	53
RB300–200	3 –2	5	25	130
RB300–250	3 –2½	5	25	100
RB350–250	3½–2½	5	10	200
RB400–250	4 –2½	2	10	263
RB350–300	3½–3	5	10	93
RB400–300	4 –3	2	10	250
RB400–350	4 –3½	2	10	200



Jiffy Snap-In Blanks

(Knockout Closers)

Conduit Sizes: ½, ¾, 1, 1¼, 1½ and 2 Inches

Used for closing up holes in service or outlet boxes. Inspection rules require that all holes in all style boxes be closed. Safe, rustproof, 1-piece type, easy to install without tools, taking up minimum space. Snaps in like glove fastener.

No.	Per 1000	K.O. Size In.	*Unit Pkg.	Wt., Lb. per 1000
50	......	½	100	13
75	......	¾	50	19
100	......	1	50	26
125	......	1¼	25	34
150	......	1½	25	40
200	......	2	25	60

*Standard package, 30 unit cartons assorted.

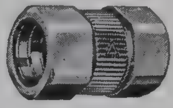
Appleton Conduit Fittings

Schedule CF

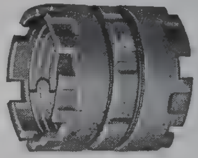
For Rigid Conduit (Heavy Wall)

Cadmium

No-Thread Couplings



½ to 2-Inch

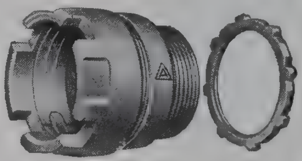


2½ to 4-Inch

No.	Size In.	Car-ton	Std. Pkg.	Wt. Lb. Standard Pkg.	No.	Size In.	Car-ton	Std. Pkg.	Wt.,Lb. Std. Pkg.
CF-82N**80**	½	25	100	23	CF-82N**96**	2	1	5	15
CF-82N**81**	¾	10	40	14	CF-82N**90**	2½	1	5	21
CF-82N**82**	1	5	20	13	CF-82N**91**	2	1	5	26
CF-82N**83**	1¼	5	20	20	CF-82N**92**	3½	1	5	34
CF-82N**84**	1½	2	10	15	CF-82N**93**	4	1	5	36

Type L No-Thread Connectors

1½ to 2-Inch



2½ to 4-Inch

CF-80N**95**	½	25	100	15	CF-80N**90**	2	1	5	9
CF-80N**96**	¾	10	40	10	CF-80N**91**	2½	1	5	13
CF-80N**97**	1	5	20	8	CF-80N**92**	3	1	5	16
CF-80N**98**	1¼	5	20	13	CF-80N**93**	3½	1	5	24
CF-80N**99**	1½	2	10	10	CF-80N**94**	4	1	5	33

Type CN No-Thread Connectors

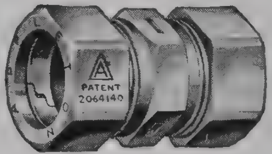
CF-80N**20**	½	25	100	17	CF-80N**22**	1	5	20	11
CF-80N**21**	¾	10	40	12	CF-80N**23**	1¼	5	10	19

Appleton Conduit Fittings

Schedule TW

For Electrical Metallic Tubing—Cadmium Finish

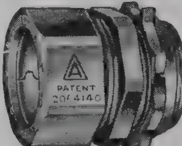
Compression Ring Type Couplings and Connectors Approved Raintight Couplings



Compression ring type coupling and connector are furnished with a round split curved ring and tightening nut. The ring drops into position and the nut tightens the ring securely to the electrical metallic tubing, making a rigid connection which is absolutely raintight. Couplings in ½ to 2-inch sizes have hexagonal nuts and the center portion is also hexagonal so that it can be held rigidly with wrench when connecting lengths of electrical metallic tubing.

No.	Size In.	Car-ton	Std. Pkg.	Wt., Lb. per 100	No.	Size In.	Car-ton	Std. Pkg.	Wt., Lb. per 100
95T050	½	50	500	13	**95T125**	1¼	5	25	50
95T075	¾	25	250	15	**95T150**	1½	2	10	80
95T100	1	25	200	20	**95T200**	2	1	5	140

Connectors

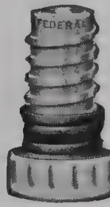


Similar to coupling except that one end is threaded and equipped with a locknut for use in connecting to boxes.

No.	Size In.	Car-ton	Std. Pkg.	Wt., Lb. per 100	No.	Size In.	Car-ton	Std. Pkg.	Wt., Lb. per 100
96T050	½	50	500	11	**96T125**	1¼	5	25	50
96T075	¾	25	250	13	**96T150**	1½	2	10	60
96T100	1	25	200	20	**96T200**	2	1	5	100

Federal Porcelain Clamp Bushings

No. A-1



No. B-1

Made of vitrified porcelain in one piece. Clamping rings are made of metal, threaded to fit threads on the porcelain. By reversing the clamp ring bushings can be used on thicker material. Bushings furnished in all colors.

Cat. No.	Per 100	Conduit K.O. Size In.	I.D. In.	O.D. In.	Length Under Head In.	Approx. Max. Size R.C. Wire	Std. Pkg.	Ship. Wt. Lb. Std. Pkg.
A-1	**$10.00**	‡1¼	5⁄16	41⁄64	⅝	No. 10	500	15
A-1½	**11.00**	½	5⁄16	13⁄16	9⁄16	No. 10	250	14
†A-1½LS	**12.00**	½	5⁄16	13⁄16	¾	No. 10	250	16
A-2	**11.00**	½	15⁄32	13⁄16	9⁄16	No. 8	250	12
†A-2LS	**12.00**	½	27⁄64	13⁄16	¾	No. 8	250	14
A-2½	**11.00**	½	33⁄64	13⁄16	9⁄16	*No. 4	250	11
A-3	**13.00**	¾	9⁄16	1	13⁄16	No. 3	250	22
A-4	**19.00**	1	¾	1 5⁄16	13⁄16	No. 00	125	18
A-4L	**19.00**	1	⅞	1 5⁄16	13⁄16	No. 4/0	125	17
A-5	**25.00**	1¼	1⅛	1⅝	15⁄16	450000 C.M.	125	25
A-6	**47.00**	2	1⅝	2 5⁄16	1 1⁄16	1000000 C.M.	60	24
B-1	**19.00**	‡1¼	9⁄32	41⁄64	1¼	No. 10	250	11

*For ½-inch Neon sign cable. †L.S., long shank. ‡Loom.

Appleton Entrance Fittings

Schedule EF

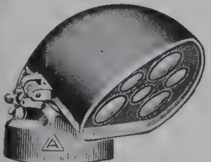
Threaded—For Rigid Conduit (Heavy Wall)

Cadmium

Type FEBS

The ½-inch size has combination 2, 3 and 4-wire bakelite cover; 2 holes plugged. The ¾ to 1¼-inch sizes have combination 2, 3, 4 and 5-wire bakelite covers; 2 holes plugged. The 1¼-inch size (No. F125S) has combination 4, 5, 6 and 7-wire composition cover; 3 holes plugged. The 1½ and 2-inch sizes have combination 2, 3, 4, 5 and 6-wire bakelite covers; 4 holes plugged.

No.	Size In.	Holes in Insulator	No. Holes and Size, In.	Carton	Std. Pkg.	Wt. Lb. per 100
F50	½	4	4 5⁄16	10	100	55
F75	¾	5	3 13⁄32, 2⅜	10	50	63
F100	1	5	3½, 2 13⁄32	5	25	105
F125	1¼	5	3⅝, 2 13⁄32	1	25	145
F125S	1¼	7	5 11⁄16, 2 9⁄16	1	10	145
F150	1½	6	3 25⁄32, 2 9⁄16, 1⅜	1	5	260
F200	2	6	3–1, 2¾, 1 17⁄32	1	5	520



Type FEBR—Reversible

With combination 2, 3, 4, 5 and 6-wire composition covers.

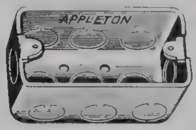
Reversible type for outside conduit installation. Can be used either vertically or horizontally on conduit.

No.	Size In.	K.O., in Covers	No. and Size K.O., In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
F250	2½	6	3–1¾, 3–1⅛	1	1	11½
F300	3	6	3–1¾, 3–1⅛	1	1	12½
F350	3½	6	3–1¾, 3–1⅛	1	1	13¼
F400	4	6	3–1¾, 3–1⅛	1	1	13½

Appleton Handy Outlet Boxes

For ½, ¾ and 1-Inch Rigid Conduit

Schedule OB



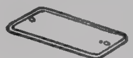
Nos. OB-4CS and OB-4SSLS are furnished with three knockouts in sides, one in each end and two in bottom for ½-inch conduit only. Nos. OB-4SSL and OB-4SSLD are furnished with three knockouts in each side, one in each end and two in bottom for ½-inch conduit. For ¾ and 1-inch conduit, two knockouts in each side, one in each end and one in center of bottom. Specify size K.O. on all orders. Galvanized finish.

No.	Per 100	Dimensions, Inches Length	Width	Depth	Std. Pkg.	Wt. Lb. Per 100
OB-4-CS	.....	4	2⅛	1⅞	50	59
OB-4-SSL	.....	4	2⅛	2⅛	50	68
OB-4-SSLD	.....	4	2⅛	2½	50	80
OB-4-SSLS	.....	4	2⅛	1½	50	66

Covers for Appleton Handy Outlet Boxes

No. OB-2540

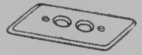
Steel cover, raised, blank.
Galvanized finish.



No.	Per 100	Std. Pkg.	Wt. Lb. Per 100
OB-2540	.....	100	15

No. OB-2537

Steel cover, raised, for double push button switches.
Galvanized finish.

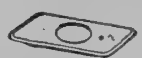


No.	Per 100	Std. Pkg.	Wt. Lb. Per 100
OB-2537	.....	100	11

No. OB-2539

Without Lift Cover

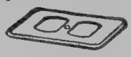
Steel cover, raised, for flush plug receptacles.
Galvanized finish.



No.	Per 100	Std. Pkg.	Wt. Lb. Per 100
OB-2539	.....	100	11

No. OB-2510

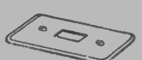
Steel cover, raised, for tumbler or toggle switches with square handle.



No.	Per 100	Std. Pkg.	Wt. Lb. Per 100
OB-2510	.....	100	11

No. OB-2594

Steel cover, raised, for switches, with square handle.
Galvanized finish.

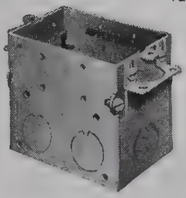


No.	Per 100	Std. Pkg.	Wt. Lb. Per 100
OB-2594	.....	100	14

Appleton Switch Boxes

Schedule SB

With Supporting Ears
Galvanized
For ½-Inch Rigid Conduit (Heavy Wall)



No. 222

Knockouts: ends, one ½-inch; sides, two ½-inch; bottom, one ½-inch.

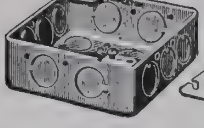
Both sides have four holes for 20-penny nails in addition to regular nail holes with plaster ears.

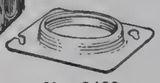
No.	Dimensions, Inches Length	Width	Depth	Std. Pkg.	Wt. Lb. per 100
111	3	2	2	50	58
222	3	2	2½	50	70
333	3	2	2¾	50	76
333D	3	2	3½	50	98

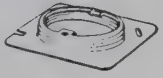
Appleton 4-Inch Square Outlet Boxes and Covers

Schedule OB

Galvanized


No. 4S Box


No. 8460 Cover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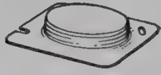
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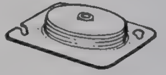
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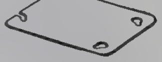
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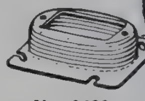
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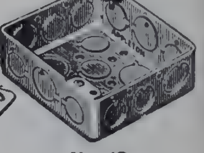
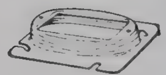

No. 4S Special Box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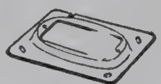
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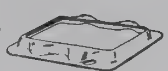
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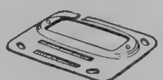
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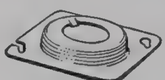
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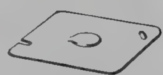
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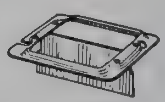
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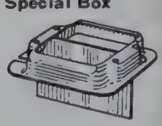
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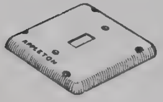
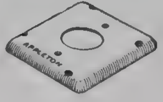

Nos. 8360 and 8361 Covers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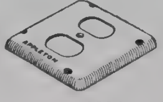
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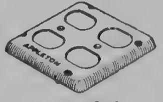
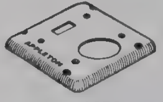

Nos. 8370 and 8371 Covers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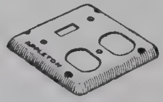
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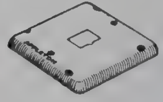
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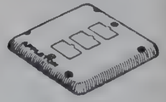

No. 8378 Cover

Boxes

No.	Universal Key No.	Description	Std. Pkg.	Wt., Lb. per 100
4-S½	52151–½	1½ In. Deep, 10–½-Inch K.O. in Sides, 5 in Bottom	50	88
4-S¾	52151–¾	1½ In. Deep, 2–¾-In. K.O. in each side; 3–½-In. and 2–¾-In. K.O. in Bottom	50	88
4-S Spec.	52151 Spec.	1½ In. Deep, 2–½ and 1–¾-In. K.O. in each side; 3–½-In. K.O. in Bottom	50	88
4-SL½	52141–½	1¼ In. Deep, 10–½-Inch K.O. in sides, 5 in Bottom	50	78
4-SD½	52171–½	2⅛ In. Deep with 10–½-Inch K.O. in Sides, 5 in Bottom	50	102
4-SD¾	52171–¾	2⅛ In. Deep with 8–¾-In. K.O. in Sides, K.O. 2–¾- and 3–½-In. K.O. in Bottom	50	102
4-SD1	52171–1	2⅛ In. Deep with 8–1-In. K.O. in Sides and 3–½- and 2–¾-In. K.O. in Bottom	50	102
4SD Spec.	....	2⅛ In. Deep, 2–½ and 1–¾-In. K.O. in Each Side; 3–½ and 2–¾ K.O. in Bottom	50	102

Covers

No.	Universal Key No.	Description	Std. Pkg.	Wt., Lb. per 100
8460	52C48	Raised, Open	100	34
8461	52C3	Raised, ⅝ Inch Open, Ears, 2$\frac{23}{32}$ Inches Center to Center	100	35
8461D	.....	Raised, 1¼ Inch Open, Ears 2$\frac{23}{32}$ Inches Center to Center	50	58
8462	52C2	Raised, Closed, ⅝ Inch High	100	46
8463A	52C12	Raised, with ⅜ Inch Steel Bushing	100	47
8465	52C1	Flat, Blank	100	39
8466	52C16	Raised, 1¼ Inch for Single Flush Device	100	49
9466A	52C15	Raised, 1 Inch for Single Flush Device	100	45
8467	52C15 ⅞ In.	Raised, ⅞ Inch for Single Flush Device	100	39
8468	52C14	Raised, ¾ Inch for Single Flush Device	100	36
8468C	52C14 ⅝ In.	Raised, ⅝ Inch for Single Flush Device	100	34
8468A	52C13	Raised, ½ Inch for Single Flush Device	100	31
8468B	52C62	Raised, ¼ Inch for Single Flush Device	100	27
8468F	....	Flat, for One Single Flush Device	100	27
8469	52C21	Raised, 1¼ Inch for Two Flush Devices	100	45
8469A	52C19	Raised, 1 Inch for Two Flush Devices	100	39
8470	52C18	Raised, ¾ Inch for Two Flush Devices	100	30
8470C	52C18 ⅝ In.	Raised, ⅝ Inch for Two Flush Devices	100	28
8470A	52C17	Raised, ½ Inch for Two Flush Devices	100	21
8470B	52C20	Raised, ¼ Inch for Two Flush Devices	100	17
8470F	....	Flat, for Two Flush Devices	100	14
8475	52C10	Raised, ¼ In., Offset for Single Flush Device at One Side, Other Gang Blank	100	27
8472	52C35, 52C36	Raised, with 1½ Inch Hole for Ring Receptacles	100	44
8474	52C6	Flat, ½ Inch K.O. in Center	100	38
8474A	52C7	Raised, ½ Inch K.O. in Center	100	48
8478	52C28	Flat, Spider with Bolts	100	36

Partitions

8506	....	Raised ½-In., 2-Gang Partition; For Two Flush Devices, 1½-In. Depth Box	50	84
8507	....	Raised ¾-In., 2-Gang Partition; For Two Flush Devices, 1½-In. Depth Box	50	54

Surface Covers

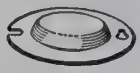
—⅛-Inch Deep—		—½-Inch Deep—			
No.	Wt., Lb. per 100	No.	Wt., Lb. per 100	Description	Std. Pkg.
8360	25	**8361**	50	For One Toggle Switch	50
8362	27	**8363**	48	For One Single Flush Receptacle	50
8364	25	**8365**	45	For One Duplex Flush Receptacle	50
8366	42	**8367**	44	For Two Toggle Switches	50
8368	21	**8369**	44	For Two Single Flush Receptacles	50
8370	20	**8371**	39	For Two Duplex Flush Receptacles	50
8372	26	**8373**	49	For One Toggle Switch and One Single Flush Receptacle	50
8374	21	**8375**	47	For One Toggle Switch and One Duplex Flush Receptacle	50
8376	30	....	..	With 1-Hole Strap for P&S Despard, Bryant IL or Hubbell LS Wiring Devices	50
8378	30	....	..	With 3-Hole Strap for P&S Despard, Bryant IL or Hubbell LS Wiring Devices	50

Appleton 3¼-Inch Octagonal Boxes and Covers

Schedule OB

Galvanized

No. 30 Box

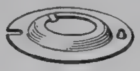


No. 8301 Cover

No. 8301-A Cover

No. 8302-A Cover

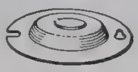
No. 8303 Cover



No. 8311 Cover

No. 8317 Cover

No. 8320 Cover



No. 8321 Cover

No. 8314-LR Cover

Boxes

No.	Universal Key No.	Description	Std. Pkg.	Wt., Lb. per 100
30½	24151–½	1½ In. Deep, 4–½-Inch K.O. in Sides, 1 in Bottom	50	51
30¾	24151–¾	1½ In. Deep, 4–¾-Inch K.O. in Sides, 1 in Bottom	50	51
30 Special	24151 Special	1½ In. Deep, 2–½-In. and 2–¾-In. K.O. in Sides, 1–½-In. in Center of Bottom	50	51

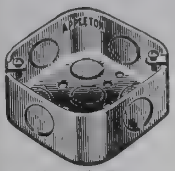
Covers

No.	Universal Key No.	Description	Std. Pkg.	Wt., Lb. per 100
8301	24C2	Raised, Closed	100	24
8301A	24C1	Flat, Blank	100	23
8302A	24C12	Raised, with ⅜-Inch Steel Bushing	100	24
8303	.....	Flat, with Cord Grip	100	25
8311	24C35, 24C36	Raised, 1½-Inch Hole for Sign Receptacles	100	18
8317	24C28	Flat, Spider with Bolts	100	18
8320	24C6	Flat, ½-Inch K.O. in Center	100	20
8321	24C7	Raised, ½-Inch K.O. in Center	100	23
8314LR	....	With Openings, for Duplex Receptacle	100	15

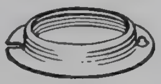
Appleton 4-Inch Octagonal Outlet Boxes and Covers

Schedule OB

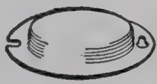
Galvanized



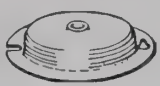
No. 40 Box



No. 8400 Cover



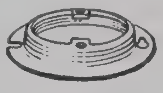
No. 8401 Cover



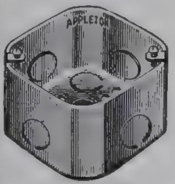
No. 8402A Cover

No. 8403 Cover

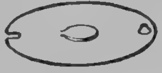
No. 8404 Cover



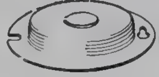
No. 8409 Cover



No. 40D Box



No. 8413 Cover

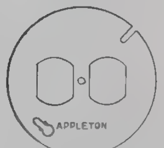


No. 8414 Cover

No. 8424 Cover

No. 8434 Cover

No. 8441 Cover



No. 8420-LR Cover

Boxes

No.	Universal Key No.	Description	Std. Pkg.	Wt., Lb. per 100
40½	54151–½	1½ In. Deep, 4–½-Inch K.O. in Sides, 5–½-Inch K.O. in Bottom	50	66
40¾	54151–¾	1½ In. Deep, 1–¾-Inch K.O. in Each Side, 3–½-Inch and 2–¾-Inch K.O. in Bottom	50	66
40 Spec.	54151 Spec.	1½ In. Deep, 2–½-Inch and 2–¾-Inch K.O. in Sides, 3–½-Inch and 2–¾-Inch K.O. in Bottom	50	66
4-OD½	54171–½	2⅛ In. Deep, 4–½-Inch K.O. in Sides, 5–½ K.O. in Bottom	50	84
4-OD¾	54171–¾	2⅛ In. Deep, 4–¾-Inch K.O. in Sides, 3–½-Inch and 2–¾-Inch K.O. in Bottom	50	84
4-OD1	54171–1	2⅛ In. Deep, 4–1-Inch K.O. in Sides, 3–½-Inch and 2–¾-Inch K.O. in Bottom	50	84
4-OD Spec.	54171 Spec.	2⅛ In. Deep, 2–½-Inch and 2–¾-Inch K.O. in Sides, 3–½-Inch and 2–¾-Inch K.O. in Bottom	50	84

Covers

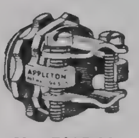
No.	Universal Key No.	Description	Std. Pkg.	Wt., Lb. per 100
8400	54C48	Raised, Open	100	24
8401	54C2	Raised, Closed, ⅝ Inch High	100	32
8402A	54C12	Raised with ⅜-Inch Steel Bushing	100	37
8403	54C1	Flat, Blank	100	29
8404	54C28	Flat, Spider with Bolts	100	27
8407	54C31	Raised, with 1$\frac{41}{64}$-Inch Hole for Federal Receptacles	100	26
8409	54C3	Raised, ⅝-Inch Open with Ears, 2$\frac{23}{32}$ Inches Center to Center	100	26
8409D	......	Raised, 1¼ Inches Open with Ears, 2$\frac{23}{32}$ Inches Center to Center	100	44
8413	54C6	Flat, ½-Inch K.O. in Center	100	26
8414	54C7	Raised, ½-Inch K.O. in Center	100	37
8424	54C35, 54C36	Raised, 1½-Inch Hole for Sign Receptacles	100	28
8434	54C14	Raised, for Single Flush Device	100	27
8439	....	Raised, for Use with Combination Hickey and Swivel Fixture Joints	100	28
8441	....	Flat, with Cord Grip	100	30
8419LR	....	With Opening for Single Receptacle	100	27
8420LR	....	With Openings for Duplex Receptacle	100	21

Appleton Box Connectors

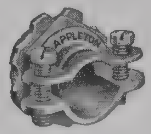
Schedule BC

For Armored Cable and Flexible Steel Conduit

Cadmium

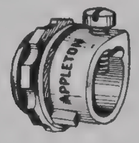


No. 7285-V

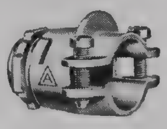


No. 7315-V

No. 7260-V



Nos. 7225-V, 7226-V



No. 7287-V

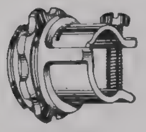
No.	Size In.	Size K.O. In.	Approx. Opening In.	Approx. Closed In.	Diam. Bushed In.	For Armored Cable Code Nos.	Flexible Steel Conduit In.	Carton	Std. Pkg.	Wt. Lb. per 1000
7285-V	3/8	1/2	.625	.250	13/32	14-2, 14-3, 14-4, 12-2, 12-3, 12-4 10-2, 14-2L, 12-2L	5/16–3/8	100	1000	75
7315-V	3/8	1/2	.531	.250	13/32	14-2, 14-3, 12-2	5/16	100	1000	87
7260-V	3/8	1/2	.531	.187	13/32	14-2, 14-3, 12-2	5/16	100	1000	98
7225-V	3/8	1/2	.531	.375	13/32	14-2, 14-3, 12-2	5/16	100	1000	76
7226-V	3/8	1/2	.625	.437	7/16	14-4, 12-3, 12-4, 10-2	3/8	100	1000	76
7287-V	1/2	1/2	.937	.625	9/16	10-3, 10-4, 8-2, 8-3, 12-3L, 10-2L, 10-3L	1/2	25	100	160
7288-V	1/2S	3/4	.937	.500	3/4	10-3, 10-4, 8-2, 8-3, 12-3L, 10-2L, 10-3L	1/2	25	100	200
7289-V	3/4	3/4	1.125	.875	3/4	8-3, 8-4, 6-2, 6-3, 4-2, 8-2L, 8-3L, 6-2L, 6-3L	3/4	25	100	220

Appleton Squeeze Box Connectors

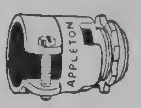
Schedule BC

For Armored Cable and Flexible Steel Conduit

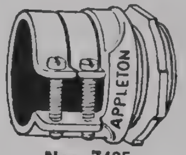
Cadmium



No. 7265-V



Nos. 7480-V to 7484 with One Screw



Nos. 7485 to 7488 with Two Screws

Heavy malleable iron, sizes from 3/8 to 3 in., for all sizes of armored cable, flexible metallic conduit, armored service entrance cable. Sizes 1 1/2 to 3 in. furnished with two screws, for double grip on cable that prevents cable slipping out on short bends. With locknuts.

No.	Size In.	Size K.O. In.	Approx. Opening In.	Approx. Closed In.	Diam. Bushed Hole In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
For Armored Cable: 14-2, 14-3, 14-4, 12-2, 12-3, 12-2L, 14-2L; 5/16-3/8-Inch Flexible Steel Conduit								
7265-V	3/8	1/2	.600	.375	13/32	100	1000	83
For Armored Cable: 12-4, 10-2, 10-3, 10-4, 14-3L, 12-2L, 10-2L; and 3/8-Inch Flexible Steel Conduit								
*7480-V	3/8	1/2	.812	.562	17/32	20	100	11
For Armored Cable: Nos. 10-4, 12-3L, 10-3L, 8-2, 8-3, 8-2L, and 1/2-In. Flexible Steel Conduit								
*7481-V	1/2	1/2	.937	.812	9/16	25	100	15
For Armored Cable: Nos. 6-2, 6-3, 4-2, 8-3L, 6-3L; and 3/4-Inch Flexible Steel Conduit								
*7482-V	3/4	3/4	1.125	1.000	3/4	25	100	21
For 1-Inch Flexible Steel Conduit								
7483	1	1	1.406	1.250	1	5	20	7
For 1 1/4-Inch Flexible Steel Conduit								
7484	1 1/4	1 1/4	1.656	1.500	1 1/4	5	10	5
For 1 1/2-Inch Flexible Steel Conduit								
7485	1 1/2	1 1/2	1.875	1.688	1 1/2	5	10	7
For 2-Inch Flexible Steel Conduit								
7486	2	2	2.500	2.313	2	5	10	11
For 2 1/2-Inch Flexible Steel Conduit								
7487	2 1/2	2 1/2	3.000	2.813	2 1/2	1	5	9
For 3-Inch Flexible Steel Conduit								
7488	3	3	3.563	3.313	3	1	5	11

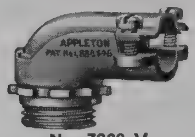
*With peek-holes for anti-short bushing.

Appleton 90-Degree Angle Box Connectors

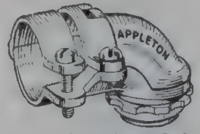
Schedule BC

For Armored Cable and Flexible Steel Conduit

Cadmium



No. 7380-V



Nos. 7381-V to 7386

No.	Size In.	Size K.O. In.	Approx. Opening In.	Approx. Closed In.	Diam. Bushed Hole, In.	Carton	Std. Pkg.	Wt. Lb. Pkg.
For Armored Cable: 14-2, 14-3, 14-4, 12-2, 12-3, 12-4, 10-2, 14-2L, 14-3L, 12-2L; and 5/16 to 3/8-Inch Flexible Steel Conduit								
7380-V	3/8	1/2	.656	.406	17/32	50	100	16
For Armored Cable: 8-2, 8-3, 8-2L; and 1/2-Inch Flexible Steel Conduit								
7381-V	1/2	1/2	.937	.812	9/16	25	100	26
For Armored Cable: 6-2, 6-3, 4-2, 6-3L, 8-3L; and 3/4-Inch Flexible Steel Conduit								
7382-V	3/4	3/4	1.125	1.000	13/16	25	100	26
For 1-Inch Flexible Steel Conduit								
7383	1	1	1.406	1.250	1	5	20	20
For 1 1/4-Inch Flexible Steel Conduit								
7384	1 1/4	1 1/4	1.687	1.500	1 1/8	5	10	11
For 1 1/2-Inch Flexible Steel Conduit								
7385	1 1/2	1 1/2	1.875	1.688	1 7/16	5	10	17
For 2-Inch Flexible Steel Conduit								
7386	2	2	2.500	2.313	2	1	5	15

Union Bakelite Bushings

With and Without Locknuts

No. B-18

No. B-18-LN

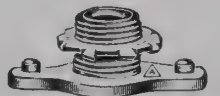
Made of black bakelite to produce strong, sharp, seamless threads.

Packed 100 in a carton. Standard package, 1000.

Thread Size Inches	Without Locknuts		With Locknuts		I.D. In.	For Knockout Inches	Length Under Hd., In.
	No.	Per 100	No.	Per 100			
1/8	B-18	$3.30	B-18 -LN	$4.96	17/64	13/32—31/64	1/4
1/4	B-14	3.34	B-14 -LN	5.20	5/16	17/32—19/32	5/16
3/8	B-38	3.58	B-38 -LN	5.24	29/64	21/32—47/64	5/16
1/2	B-12	4.30	B-12 -LN	5.56	9/16	27/32—29/32	11/32
1/2	B-122	5.26	*B-122-LN	7.26	27/32	27/32—29/32	11/32

*Two hole.

Appleton Boltless Fixture Stems



Schedule CF

Cadmium

Malleable; requires no bolts.

Standard carton, 100. Standard package, 1000.

	Solid		Open		
No.	8055	8057	8056	8058	8070
Size	3/8	1/2	3/8	1/2	3/8M, 1/8F
Wt., Std. Pkg. ...... lb.	72	80	72	80	80

Electrical

EQUIPMENT

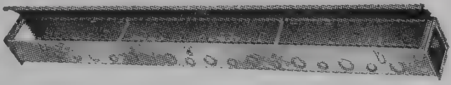
We are in position to supply a complete line of electrical equipment and will be glad to have your inquiries.

Keystone Flanged Wireways and Fittings

Listed by Underwriters' Laboratories

Wireway and all fittings finished in gray baked enamel as standard; special finishes upon request.

Square Wireway

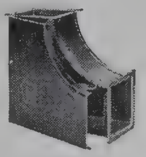


Trough is flanged at both ends so that two sections can be clamped together making easier installations.

Hinged cover. Knockouts in side and back: ½, ¾, 1 and 1¼-inch sizes in 4x4, 6x6 and 8x8-inch wireways; ½ and ¾-inch sizes in 2½x2½-inch wireways.

	2½x2½ Inches				4x4 Inches			
Lgth. Ft.	No.	Each	Std. Pkg.	Approx. Wt., Lb.	No.	Each	Std. Pkg.	Approx. Wt., Lb.
1	KD221	$3.85	9	2	KD441	$4.50	4	2.5
2	KD222	4.60	9	4	KD442	5.50	4	5.0
3	KD223	5.50	9	6	KD443	6.50	4	7.5
4	KD224	6.50	9	8	KD444	7.50	4	10.0
5	KD225	7.65	9	10	KD445	9.00	4	12.5
	6x6 Inches				8x8 Inches			
1	KD661	$14.50	2	5	KD881	$20.30	1	7.0
2	KD662	19.35	2	10	KD882	27.10	1	14.0
3	KD663	21.75	2	15	......	.....	..	....
4	KD664	24.15	2	20	......	.....	..	....
5	KD665	32.00	2	25	KD885	44.80	1	30.0

90° Elbows and Pull Boxes

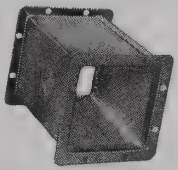


Knockouts from ½ to 2½ inches on all standard elbows.

No.	Each	Size Inches	Std. Pkg	Approx. Wt.,Lb.
*KJB220	.....	2½x2½	18	1
KEP440	$10.90	4x4	5	3
KEP660	31.00	6x6	2	6
KEP880	43.40	8x8	2	8

*See junction boxes.

Nipples



For use when shorter connections other than the standard 1-foot length of wireway are needed.

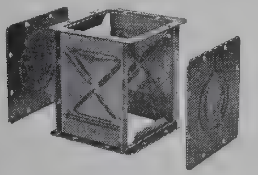
Available in standard 2½, 4, 6, and 8-inch sizes to fit all wireways.

Lengths, 1, 2, 3, 6 inches in all sizes.

	2½x2½ Inches				4x4 Inches			
Lgth. In.	No.	Each	Std. Pkg.	Approx. Wt., Lb.	No.	Each	Std. Pkg.	Approx. Wt., Lb.
1	KN221	$2.35	12	.5	KN441	$2.52	12	1.00
2	KN222	2.90	12	1.0	KN442	3.30	12	1.25
3	KN223	3.05	12	1.5	KN443	3.30	12	1.50
6	KN226	4.15	6	2.0	KN446	4.40	6	2.00
	6x6 Inches				8x8 Inches			
1	KN661	$7.95	12	2.0	KN881	$11.13	12	2.50
2	KN662	9.30	12	2.5	KN882	13.02	12	3.00
3	KN663	10.05	12	3.0	KN883	14.07	12	3.50
6	KN666	11.40	6	5.0	KN886	15.96	6	7.00

Junction Boxes

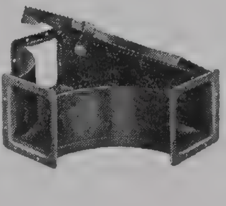
Readily used in place of more expensive ells, tees, and crosses, in addition to customary use as junction box.



Two removable closing plates with knockouts included.

No.	Each	Size Inches	Std. Pkg.	Approx. Wt. Lb.
KJB220	$3.40	2½x2½x3	18	1
KJB440	4.00	4 x4 x5½	8	2
KJB660	10.90	6 x6 x7½	6	5
KJB880	15.26	8 x8 x9½	2	6

T Fittings and Pull Boxes

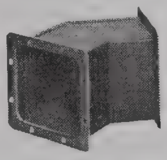


Provided with standard knockouts. Radii are for easy wire pulling.

No.	Each	Size Inches	Std. Pkg.	Approx. Wt. Lb.
*KJB220	.....	2½x2½	18	1
KTF440	$11.00	4 x4	4	4
KTF660	48.00	6 x6	1	9
KTF880	67.20	8 x8	1	14

*See junction boxes.

Elbows



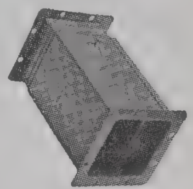
7½ Degrees

No.	Each	Size Inches	Std. Pkg.	Approx. Wt.,Lb.
KE220–7½	$2.65	2½x2½	12	1
KE440–7½	3.45	4 x4	8	2
KE660–7½	12.00	6 x6	4	5
KE880–7½	16.85	8 x8	1	7

22½ Degrees					45 Degrees				
No.	Each	Size Inches	Std. Pkg.	Approx. Wt. Lb.	No.	Each	Size Inches	Std. Pkg.	Approx. Wt. Lb.
KE220–22½	$4.00	2½x2½	12	1	KE220–45	$4.00	2½x2½	16	1
KE440–22½	5.00	4 x4	6	3	KE440–45	5.00	4 x4	6	2
KE668–22½	19.35	6 x6	4	5	KE660–45	19.35	6 x6	2	5
KE880–22½	27.09	8 x8	1	7	KE880–45	27.09	8 x8	1	7

Telescope Fittings

Slide arrangement for making connections to wireway and fittings at varying distances.



The 2½x2½-inch size extends from 7½ to 12 inches; 4x4 and 6x6-inch sizes from 8 to 12 inches.

No.	Each	Size Inches	Std. Pkg.	Approx. Wt., Lb.
KTSF220	$4.00	2½x2½	12	3
KTSF440	6.05	4 x4	4	5
KTSF660	36.00	6 x6	6	8

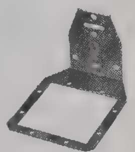
Trough Collars

This collar is used to provide flanged end when necessary to cut standard wireways.

No.	Each	Size Inches	Std. Pkg.	Approx. Wt., Lb.
KTC220	$.85	2½x2½	24	.3
KTC440	1.00	4 x4	24	.4
KTC660	3.65	6 x6	12	.7
KTC880	5.10	8 x8	6	1.0

Universal Bracket Hangers

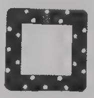
For mounting wireway on side wall.



No.	Each	Size Inches	Std. Pkg.	Approx. Wt., Lb.
KUBH220	$.64	2½x2½	48	.3
KUBH440	.85	4 x4	48	.4
KUBH660	3.05	6 x6	24	.8
KUBH880	4.25	8 x8	12	1.0

Reducing Bushing

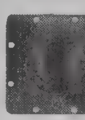
Used to reduce from 8 to 6, 6 to 4, and 4 to 2½-inch wireways.



No.	Each	Size Inches	Std. Pkg.	Approx. Wt., Lb.
KRB420	$3.05	4 to 2½	12	.4
KRB640	6.65	6 to 4	12	1.0
KRB860	12.00	8 to 6	12	1.5

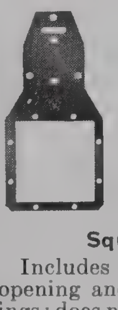
Closing Plates

An end closer for wireways, auxiliary fittings or junction boxes.



No.	Each	Size Inches	Std. Pkg.	Approx. Wt., Lb.
KCP220	$.85	2½x2½	48	.3
KCP440	1.00	4 x4	48	.4
KCP660	3.05	6 x6	24	.7
KCP880	4.25	8 x8	12	1.0

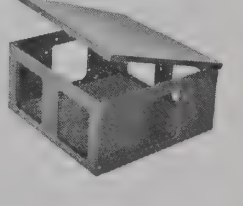
Universal Drop Hangers



Used for suspending wireway from overhead. Provided with all necessary screws and nuts for mounting.

No.	Each	Size Inches	Std. Pkg.	Approx. Wt., Lb.
KUDH220	$.64	2½x2½	48	.3
KUDH440	.85	4 x4	48	.4
KUDH660	3.05	6 x6	24	.8
KUDH880	4.25	8 x8	12	1.0

Square Pull Boxes



Includes two sides with double opening and two with single openings; does not include closing plates.

No.	Each	Size Inches	Std. Pkg.	Approx. Wt., Lb.
KSPB440	$24.20	4x4	1	10
KSPB660	48.00	6x6	1	15

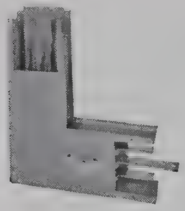
Westinghouse Bus Duct Fittings

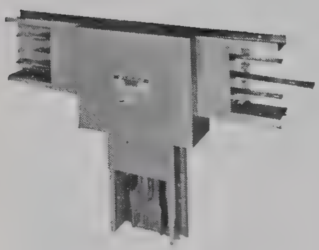
L's, T's, X's, Expansion Joints, Reducers and End Closers

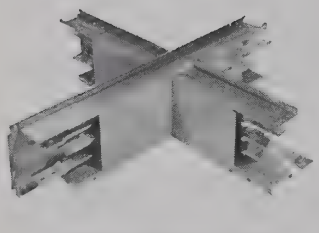
Reduction in copper size should not be made within Elbows, Tees, and Crosses. Where reduction in branch capacity is desired, add the price of a reducer which will be built into a 30-inch section adjacent to that arm. Where an adapter cubicle is placed adjacent to a fitting, the price of the cubicle already includes the price of the reducer.

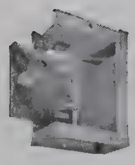
End closers: Price includes labor and material.

*All Nos. are for 120/208 volts. For same item except suitable for 277/480 volts, prefix Nos. shown with letter H. For full size neutral, use fabrication price of 3-phase 4-wire half size neutral plus duct footage of 3-phase 4-wire full neutral of ampere rating involved from Price per Foot table.


Forward Elbow


Forward Tee


Forward-Rearward Cross


End Closer

Forward Elbow

	600 Volts, 1-Phase 2-Wire			600 Volts, 3-Phase 3-Wire			*120/208 Volts, 3-Phase 4-Wire, ½ N.		
Ampere Capacity	No.	Complete Each	Fabrication Only Each	No.	Complete Each	Fabrication Only Each	No.	Complete Each	Fabrication Only Each
225	FE-22	$117.50	$92.00	FE-23	$120.50	$92.00	FE-24	$146.00	$110.00
400	FE-42	131.00	92.00	FE-43	134.00	92.00	FE-44	167.00	110.00
600	FE-62	143.00	92.00	FE-63	146.00	92.00	FE-64	179.00	110.00
800	FE-82	167.00	92.00	FE-83	173.00	92.00	FE-84	209.00	110.00
1000	FE-102	182.00	92.00	FE-103	191.00	92.00	FE-104	233.00	110.00
1250	FE-122	226.00	106.00	FE-123	238.00	106.00	FE-124	280.00	124.00
1500	FE-152	256.00	106.00	FE-153	268.00	106.00	FE-154	322.00	124.00

NOTE: For other elbow types replace prefix FE in catalog number as follows: rearward—RE; upward—UE; downward—DE.

Forward Tee

225	FT-22	$148.25	$110.00	FT-23	$152.75	$110.00	FT-24	$184.00	$130.00
400	FT-42	168.50	110.00	FT-43	173.00	110.00	FT-44	215.50	130.00
600	FT-62	186.50	110.00	FT-63	191.00	110.00	FT-64	233.50	130.00
800	FT-82	222.50	110.00	FT-83	231.50	110.00	FT-84	278.50	130.00
1000	FT-102	245.00	110.00	FT-103	258.50	110.00	FT-104	314.50	130.00
1250	FT-122	304.00	124.00	FT-123	322.00	124.00	FT-124	378.00	144.00
1500	FT-152	349.00	124.00	FT-153	367.00	124.00	FT-154	441.00	144.00

NOTE: For other types of tees replace prefix FT in catalog number as follows: rearward—RT; upward—UT; downward—DT.

Forward-Rearward Cross

225	EC-22	$181.00	$130.00	EC-23	$187.00	$130.00	EC-24	$224.00	$152.00
400	EC-42	208.00	130.00	EC-43	214.00	130.00	EC-44	266.00	152.00
600	EC-62	232.00	130.00	EC-63	238.00	130.00	EC-64	290.00	152.00
800	EC-82	280.00	130.00	EC-83	292.00	130.00	EC-84	350.00	152.00
1000	EC-102	310.00	130.00	EC-103	328.00	130.00	EC-104	398.00	152.00
1250	EC-122	384.00	144.00	EC-123	408.00	144.00	EC-124	478.00	166.00
1500	EC-152	444.00	144.00	EC-153	468.00	144.00	EC-154	562.00	166.00

NOTE: For upward-downward cross replace prefix EC in catalog number by FC.

Expansion Joint

225	EX-22	$175.00	$90.00	EX-23	$205.00	$110.00	EX-24	$280.00	$160.00
400	EX-42	220.00	90.00	EX-43	250.00	110.00	EX-44	350.00	160.00
600	EX-62	260.00	90.00	EX-63	290.00	110.00	EX-64	390.00	160.00
800	EX-82	340.00	90.00	EX-83	380.00	110.00	EX-84	490.00	160.00
1000	EX-102	390.00	90.00	EX-103	440.00	110.00	EX-104	570.00	160.00
1250	EX-122	520.00	120.00	EX-123	620.00	180.00	EX-124	760.00	240.00
1500	EX-152	620.00	120.00	EX-153	720.00	180.00	EX-154	900.00	240.00

Reducer

Ampere Cap.		600 Volts, 1-Phase 2-Wire			600 Volts, 3-Phase 3-Wire			*120/208 Volts, 3-Phase 4-Wire, ½N.		
Main	Load	No.	Complete Each	Fabrication Only Each	No.	Complete Each	Fabrication Only Each	No.	Complete Each	Fabrication Only Each
1500	1250	RR-15122	$232.00	$120.00	RR-15123	$264.00	$142.00	RR-15124	$311.00	$164.00
1500	1000	RR-15102	220.00	120.00	RR-15103	245.75	142.00	RR-15104	297.75	164.00
1500	800	RR-1582	213.75	120.00	RR-1583	238.25	142.00	RR-1584	287.75	164.00
1500	600	RR-1562	203.75	120.00	RR-1563	227.00	142.00	RR-1564	275.25	164.00
1250	1000	RR-12102	186.00	98.00	RR-12103	228.00	132.00	RR-12104	262.25	146.00
1250	800	RR-1282	179.25	98.00	RR-1283	220.75	132.00	RR-1284	252.25	146.00
1250	600	RR-1262	169.25	98.00	RR-1263	209.50	132.00	RR-1264	239.75	146.00
1250	400	RR-1242	164.25	98.00	RR-1243	203.25	132.00	RR-1244	234.75	146.00
1000	800	RR-1082	157.00	88.00	RR-1083	169.00	94.00	RR-1084	217.00	124.00
1000	600	RR-1062	146.75	88.00	RR-1063	157.75	94.00	RR-1064	204.00	124.00
1000	400	RR-1042	141.75	88.00	RR-1043	152.75	94.00	RR-1044	199.00	124.00
800	600	RR-862	131.00	78.00	RR-863	141.00	84.00	RR-864	178.00	108.00
800	400	RR-842	125.50	78.00	RR-843	135.25	84.00	RR-844	173.00	108.00
600	400	RR-642	100.00	62.00	RR-643	104.00	64.00	RR-644	141.00	88.00
600	225	RR-622	94.00	62.00	RR-623	98.40	64.00	RR-624	131.75	88.00
400	225	RR-422	83.00	56.00	RR-423	87.00	58.00	RR-424	119.00	80.00

NOTE: For right to left reducer replace prefix RR in catalog number by LR.

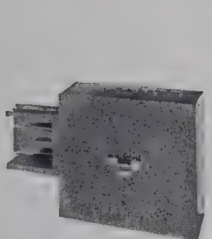
End Closers—Right and Left

2-Pole, 3-Pole, 3-Phase, 4-Wire

Ampere Capacity	EC-2	EC-4	EC-6	EC-8	EC-10	EC-12	EC-15
Each	$10.00	10.00	10.00	14.00	14.00	20.00	20.00

Westinghouse Bus Duct Fittings

Cable Tap Boxes, Flanges, Transformer Tap Openings and Other Fittings



End Cable Tap Box

Cable Tap Boxes: Price includes labor and material. Two standard types are available: the center type for installation where duct sections join; the end type for installation at end of duct run. If cable tap boxes are to be at locations differing from above, add 50 per cent to standard prices. **When ordering,** unless otherwise specified, cable tap boxes do not require addition of end closers.

Flanges: For making rigid connection of duct to switchboards, etc., price includes labor and material. Copper extensions are priced separately. Standard flanged section of duct is 2 feet long and includes copper extensions. Standard copper extension is 8 inches.

Transformer Tap Openings: One opening in side of duct. Price includes ebony cover plate. Copper extensions are priced separately.

Right End Cable Tap Box

Ampere Capacity	600 Volts, 1-Phase, 2-Wire No.	600 Volts, 1-Phase, 2-Wire Each	600 Volts, 3-Phase, 3-Wire No.	600 Volts, 3-Phase, 3-Wire Each	*120/208 Volts 3-Phase, 4-Wire No.	*120/208 Volts 3-Phase, 4-Wire Each
225	REB-22	$66.00	REB-23	$80.00	REB-24	$86.00
400	REB-42	66.00	REB-43	80.00	REB-44	86.00
600	REB-62	66.00	REB-63	80.00	REB-64	86.00
800	REB-82	96.00	REB-83	108.00	REB-84	116.00
1000	REB-102	96.00	REB-103	108.00	REB-104	116.00
1250	REB-122	160.00	REB-123	190.00	REB-124	200.00
1500	REB-152	180.00	REB-153	210.00	REB-154	220.00

Flange

Ampere Capacity	2, 3-Pole 3-Phase 4-Wire Each	2-Pole Each	3-Pole Each	†3-Phase 4-Wire Half Neutral Each
225	$38.00	$4.00	$6.00	$7.00
400	38.00	8.00	12.00	14.00
600	38.00	12.00	18.00	21.00
800	42.00	16.00	24.00	28.00
1000	42.00	22.00	33.00	39.00
1250	50.00	26.00	38.00	45.00
1500	54.00	30.00	44.00	52.00

Transformer Tap Openings

Ampere Capacity	2, 3-Pole 3-Phase 4-Wire Each	2-Pole Each	3-Pole Each	†3-Phase 4-Wire Half Neutral Each
225	$38.00	$4.00	$6.00	$7.00
400	38.00	8.00	12.00	14.00
600	38.00	12.00	18.00	21.00
800	42.00	16.00	24.00	28.00
1000	42.00	22.00	33.00	39.00
1250	50.00	26.00	38.00	45.00
1500	54.00	30.00	44.00	52.00

NOTE: For other cable tap box types replace prefix REB in catalog number as follows: Left end—LEB; front—FTB; rear—RTB.

*All Nos. are for 120/208 volts. For same item having same housing dimensions and suitable for 277/480 volts, prefix No. shown with letter H. For lug sizes furnished in standard cable tap boxes, see Price per Foot table. For 3-phase, 4-wire full neutral cable tap box prices add the difference between 3-phase, 3-wire and 3-phase, 4-wire prices to 3-phase, 4-wire prices.

†For full neutral copper extensions, double the price of 2 pole unit copper extension.

Bus Bar Extensions—Price Per Foot

Ampere Capacity	Bus Bars No. 1 Size In.	Bus Bars Cross Sectional Area per Bus Bar Sq. In.	2-Pole Per Ft.	2-Pole Wt. Lb. Per Ft.	3-Pole Per Ft.	3-Pole Wt. Lb. Per Ft.	3-Phase, 4-Wire Half Neutral Per Ft.	3-Phase, 4-Wire Half Neutral Wt. Lb. Per Ft.	3-Phase, 4-Wire Full Neutral Per Ft.	3-Phase, 4-Wire Full Neutral Wt. Lb. Per Ft.
‡225	⅛x⅞	0.109	$8.50	12.2	$9.50	12.6	$12.00	12.8	$12.00	12.8
400	¼x1½	0.375	13.00	14.5	14.00	15.9	19.00	16.6	21.00	17.3
600	¼x2	0.500	17.00	15.6	18.00	17.5	23.00	18.4	27.00	19.4
800	¼x3	0.750	25.00	18.0	27.00	21.1	33.00	22.6	38.00	24.4
1000	¼x4	1.000	30.00	20.5	33.00	24.5	41.00	26.4	47.00	28.5
§1250	¼x5	1.250	40.00	22.4	44.00	27.0	52.00	29.3	58.00	32.1
§1500	¼x6	1.500	50.00	25.3	54.00	31.2	66.00	34.1	76.00	37.1

‡The 225 ampere rating has a full size neutral in the 4-wire duct. §Does not carry Underwriters' label.

Large Air Circuit Breaker Cubicles

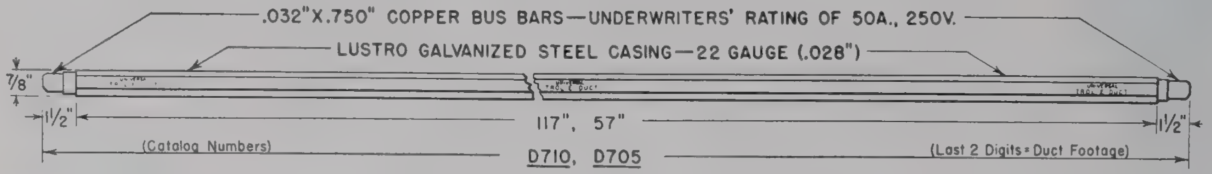
For 600 Volts A.C. or 250 Volts D.C. Maximum

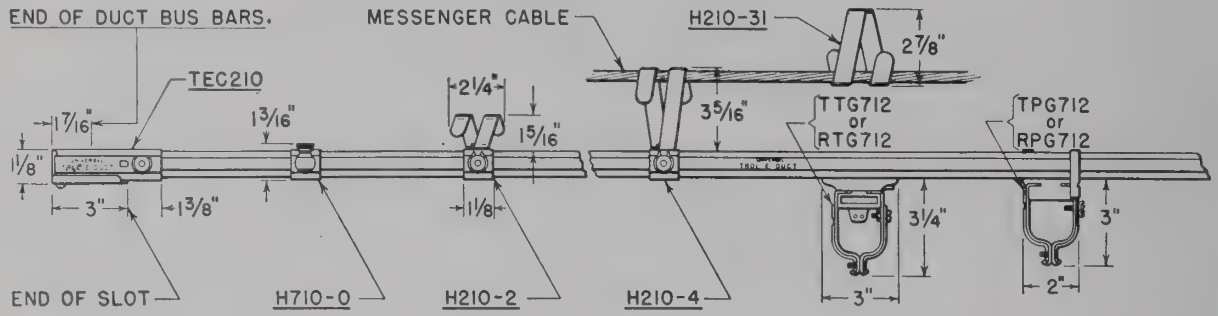
Breaker No.	DB-25	DB-50	DB-50	DB-50	DA-75	DA-75	DA-100
Ampere Capacity	400 & 600	800	1000	1600	2000	3000	4000
Interrupting Rating....amperes	25,000	50,000	50,000	50,000	75,000	75,000	100,000
2-Pole....each	$1925.00	$3140.00	$3180.00	$3236.00	$6910.00	$8164.00	$9990.00
3-Pole....each	2090.00	3500.00	3550.00	3630.00	7878.00	9548.00	12036.00

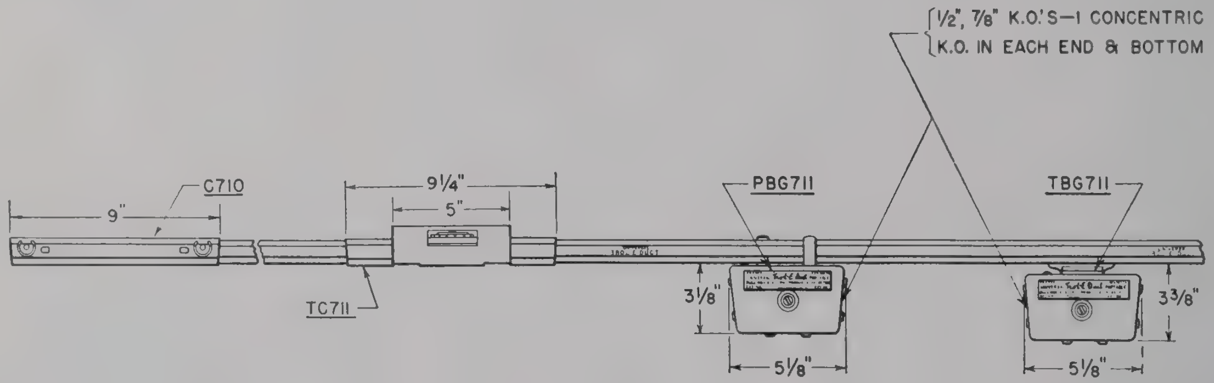
NOTE: Price includes all connections (flange and bus extensions, but no duct footage) to cubicles. Where two units are desired in one housing, double the price of one unit.

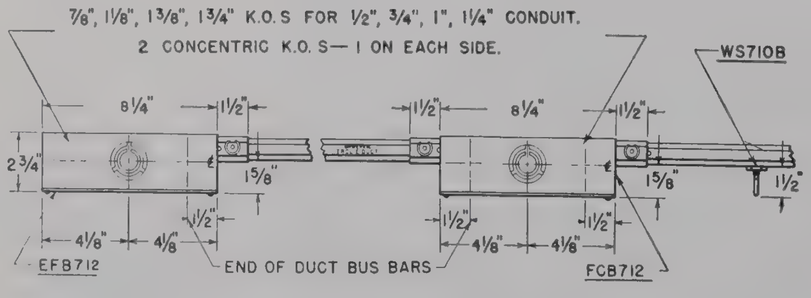
Add $30.00 to 3-pole price, on DB-25 and DB-50 to obtain 4-pole solid neutral price. Add $100.00 to DA-75 and DA-100 3-pole price to obtain 4-pole solid neutral price.

Dimensional Data for Installing Bulldog Universal Trol-E-Duct®


.032"X.750" COPPER BUS BARS—UNDERWRITERS' RATING OF 50A., 250V.
LUSTRO GALVANIZED STEEL CASING—22 GAUGE (.028")
7/8"
1 1/2"
117", 57"
1 1/2"
(Catalog Numbers)
D710, D705
(Last 2 Digits = Duct Footage)


END OF DUCT BUS BARS.
MESSENGER CABLE
H210-31
2 7/8"
TEC210
1 7/16"
1 3/16"
2 1/4"
1 5/16"
3 5/16"
TTG712 or RTG712
TPG712 or RPG712
1 1/8"
3"
1 3/8"
1 1/8"
3 1/4"
3"
3"
2"
END OF SLOT
H710-0
H210-2
H210-4


1/2", 7/8" K.O.'S—1 CONCENTRIC K.O. IN EACH END & BOTTOM
C710
9"
9 1/4"
5"
PBG711
TBG711
TC711
3 1/8"
3 3/8"
5 1/8"
5 1/8"


7/8", 1 1/8", 1 3/8", 1 3/4" K.O.S FOR 1/2", 3/4", 1", 1 1/4" CONDUIT.
2 CONCENTRIC K.O. S— 1 ON EACH SIDE.
WS710B
8 1/4"
1 1/2"
1 1/2"
8 1/4"
1 1/2"
2 3/4"
1 5/8"
1 5/8"
1 1/2"
1 1/2"
1 1/2"
1 1/2"
4 1/8"
4 1/8"
4 1/8"
4 1/8"
EFB712
END OF DUCT BUS BARS
FCB712

Each No. TC711 coupling adds ¼-inch to the length of the duct run. No. C710 couplings do not add to the length of the duct run.

Each No. FCB712 adds from 5 to 6½ inches to the length of the duct run. Each No. EFB712 adds from 6⅝ to 7⅜ inches to the duct run. The variable dimensions are due to the adjustment feature of Universal Trol-E-Duct Feed-in Boxes.

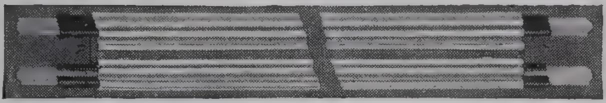
Bulldog Universal Type Trol-E-Duct® Systems

Portable Electricity

Universal Trol-E-Duct provides a flexible wiring system, in contrast to the old fixed outlet system.

Consists of standardized duct sections enclosing copper busbars into which can be inserted plugs and trolleys for feeding current to lights and small tools.

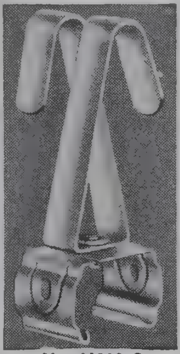
Duct Lengths



Rated capacity: 50 amperes, 250 volts.

Available in two lengths, measured from ends of bus bars.

No.	D705	D710
Each	**$9.00**	**12.00**
Length, feet	5	10
Standard Package: Quantity	10	10
Weight, lb.	30	60



No. H210-2

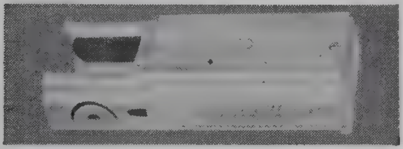
Hangers

Available without hooks for mounting flush against wall or ceiling.

Also available with hooks for use with messenger cable.

No.	H710-0	H210-2	H210-4
Each	**$.20**	**.60**	**.60**
Hook, in.	None	1¼	3¼
Std. Pkg. Qty.	100	50	50
Weight Std. Pkg., lb.	6¼	6½	12½

No. TEC210 End Caps



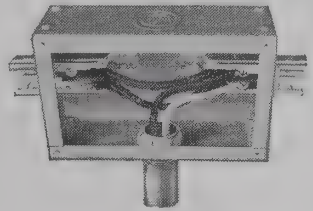
No. TEC210 is used as feed-in or trolley entrance point.

Standard package, 10.

Weight per standard package, 3 pounds.

No. TEC210....................each **$2.00**

Duct Couplings



No. FCB712

Provides a means for joining the duct sections electrically and mechanically.

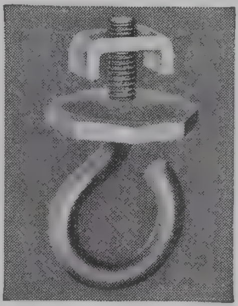
Standard Couplings

No.	Each	Type	Std. Pkg. No.	Std. Pkg. Wt. Lb.
C710	**$2.50**	Plain	10	15

Feed-In Couplings With Outlet Box

No.	Each	Type	Std. Pkg. No.	Std. Pkg. Wt. Lb.
FCB712	**$12.00**	Center Feed	6	17
EFB712	**10.00**	End Feed	6	17

No. WS710B Weight Support



When inserted in the duct, it supports loads such as lighting fixtures, transformers, etc., up to 75 pounds.

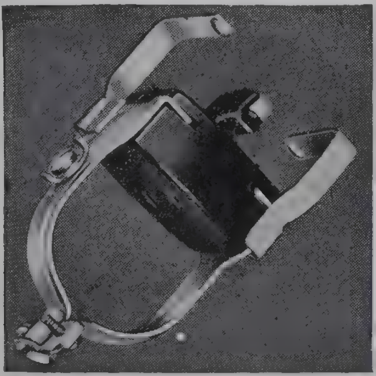
It locks in place by turning 90° in duct, bringing prongs of clamp down into duct grooves and then tightening lock nut against the outside of duct.

Standard package, 50.

Weight per standard package, 4½ pounds.

No. WS710B....................each **$.60**

Twist-Out Plugs and Trolleys



No. TPG712 Plug

The terminal type plug or trolley is used where the connection to the light fixture or appliance is likely to be permanent.

The receptacle type is used where it is necessary to frequently disconnect the appliance or fixture.

Cord set is not included.

Plugs

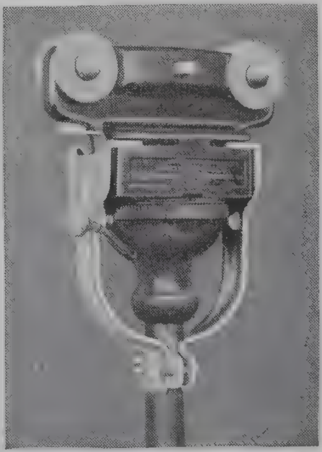
125 Volts, 20 Amperes, A.C.
125 Volts, 15 Amperes, D.C.

No.	Each	Type	Std. Pkg. No.	Std. Pkg. Weight Pounds
TPG712	**$3.00**	Terminal	10	3
RPG713	**2.50**	Receptacle	10	2

Trolleys

250 Volts, 20 Amperes, A.C.
250 Volts, 20 Amperes, D.C.

No.	Each	Type	Std. Pkg. No.	Std. Pkg. Weight Pounds
TTG712	**$5.00**	Terminal	10	3½
RTG712	**5.00**	Receptacle	10	3½



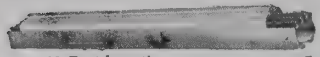
No. RTG712 Trolley

Feedrail "60" Electrical Distribution Systems

Prefabricated Unit Sections—For Industrial Lighting, Small Tools, Sewing Machines, Cloth Cutting Machines

Electric Feedrail is unit sections of steel enclosed bus bars that can be bolted together to form any length or shape of system. Polarized throughout. Movable outlets or trolleys make contact with bus bars and provide readily movable support for portable tools, etc. Other Feedrail systems available in 100, 225, 375 and 500-ampere capacities.

Straight Track



60 Amperes—250 Volts, A.C. or D.C. With Bus Bars

10-Foot Lengths		5-Foot Lengths			
No.	Each	No.	Each	Phase	Type
FRS-100	$38.50	FRS-100-5	$22.00	3	Plain
FRS-101	44.00	FRS-101-5	27.50	3	Door
FRS-200	33.00	FRS-200-5	19.25	1	Plain
FRS-201	38.50	FRS-201-5	24.75	1	Door

Minimum of one door section recommended for insertion and removal of trolleys with every 5 sections plain track.

Less than 10 feet: consider fractions of foot as extra foot and multiply length by per foot price of corresponding 10-foot straight and add $12.00.

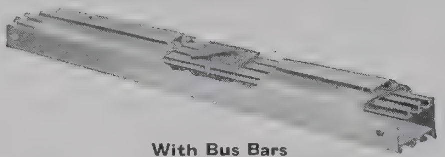
Without Bus Bars

10-Foot Lengths		5-Foot Lengths		
No.	Each	No.	Each	Type
FRS-130	$22.00	FRS-130-5	$16.50	Plain
FRS-131	27.50	FRS-131-5	22.00	Door

Less than 10 feet: consider fractions of foot as extra foot, multiply this length by per foot price of corresponding 10-foot straight and add $9.00.

Sectionalizing Track

60 Amperes—250 Volts—A.C. or D.C.



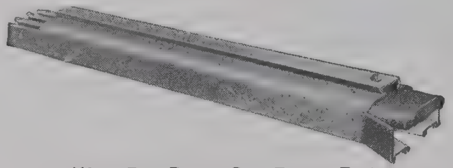
With Bus Bars

10-Foot Lengths		5-Foot Lengths			
No.	Each	No.	Each	Phase	Type
FRS-127	$49.50	FRS-127-5	$33.00	3	Plain
FRS-128	55.00	FRS-128-5	38.50	3	Door
FRS-227	44.00	FRS-227-5	30.25	Single	Plain
FRS-228	49.50	FRS-228-5	35.75	Single	Door

Less than 10 feet: same as for straight track with bus bars, except add $23.00.

Transfer Track

60 Amperes—250 Volts—A.C. or D.C.



With Bus Bars—One Flared End

10-Foot Lengths		5-Foot Lengths			
No.	Each	No.	Each	Phase	Type
FRS-125	$66.00	FRS-125-5	$49.50	3	Plain
FRS-126	71.50	FRS-126-5	55.00	3	Door
FRS-225	60.50	FRS-225-5	46.75	Single	Plain
FRS-226	66.00	FRS-226-5	52.25	Single	Door

Less than 10 ft.: consider fractions of foot as extra ft., multiply this length by per ft. price of corresponding 10-ft. straight and add $39.50 for 1 flared end, $67.00 for 2 flared ends. Add $11.50 for each feed box in transfer section.

Without Bus Bars—One Flared End

10-Foot Lengths		5-Foot Lengths		
No.	Each	No.	Each	Type
FRS-132	$43.00	FRS-132-5	$37.50	Plain
FRS-133	48.50	FRS-133-5	43.00	Door

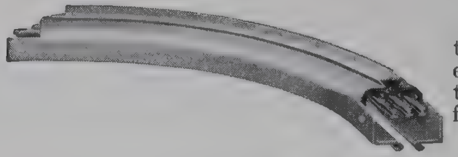
Less than 10 feet: same as for transfer track with bus bars, except add $30.00 for 1 flared end and $51.00 for 2.

Feedrail "60" Accessories

No.	Each	Description
FRS-102	$1.35	Coupling Set
FRS-103	5.50	Center Feed Set
FRS-104	3.30	Sectionalizing Insulator
FRS-105	.55	Track Hanger Set
FRS-106	6.60	End Feed Set
FRS-107	2.75	Dead End Cap
FRS-108	1.10	Messenger Cable Track Hanger Set
FRS-110	7.70	Junction Box with Lugs
FR-105	2.00	Clevis Support

Curved Track

60 Amperes—250 Volts—A.C. or D.C.



All curved sections have 4 inches of straight track on each end for coupling.

90° Curves with Bus Bars

Radius Feet	3 Phase		Single Phase	
	No.	Each	No.	Each
2½	FRS-112	$122.00	FRS-212	$122.00
3	FRS-118	130.00	FRS-218	130.00
3½	FRS-113	138.00	FRS-213	138.00
4	FRS-119	146.00	FRS-219	146.00
4½	FRS-114	154.00	FRS-214	154.00
5	FRS-120	154.00	FRS-220	154.00
5½	FRS-121	162.00	FRS-221	162.00
6	FRS-122	170.00	FRS-222	170.00
6½	FRS-123	178.00	FRS-223	178.00

Other radii and degree arc at $8.00 per linear foot plus $190.00. Consider fractions of 1 foot as extra foot. Smaller than 2½-foot radius not furnished.

Curved Track Adapter Couplings

No. FRS-116 Coupling Plates for Joining Curved to Straight Track; Opening 1 End to Fit Curved Track, Other End to Fit Smaller Straight Track.......each **$7.70**

No. FRS-117 Coupling Plates for Joining Curved to Curved Track; Opening Each End.............each **$7.70**

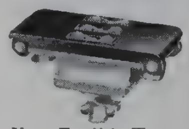
Trolleys

Special Service

20 Amperes—250 Volts—A.C. or D.C.

Non-fusible. Silver-contacts and cable grip. Brush contact.

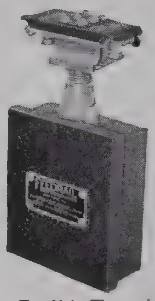
No.	Each	Phase
FRS-94	$16.00	1
FRS-84	18.00	2



Non-Fusible Type

Fusible with Cabinet

15 Amperes—250 Volts—A.C. or D.C.



Fusible Type

No.	Each	Phase	Contact
FRS-9	$27.50	3	Brush
FRS-19	29.70	3	Roller
FRS-29	25.30	Single	Brush
FRS-39	27.50	Single	Roller

Non-Fusible

15 Amperes—250 Volts—A.C. or D.C.

With ½-Inch Nipple		With Cable Grip		With Tool Hanger			
No.	Each	No.	Each	No.	Each	Phase	Contact
FRS-1	$6.60	FRS-2	$7.15	FRS-3	$7.70	3	Brush
FRS-11	7.70	FRS-12	8.25	FRS-13	8.80	3	Roller
FRS-21	6.05	FRS-22	6.60	FRS-23	7.15	1	Brush
FRS-31	7.15	FRS-32	7.70	FRS-33	8.25	1	Roller

Plug-In Jacks

8 Amperes—250 Volts—A.C. or D.C.—Single Phase

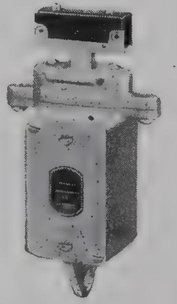
Non-Fusible

No. FRS-40 For standard 4-in. Oct. Outlet Box; 6 in. Leads........ea. **$3.85**

No. FRS-41 with 2 Pole Convenience Receptacle and Lug for Supporting Lighting Fixtures......ea. **$7.70**

No. FRS-42 Fusible

Same as No. FRS-41 except Fusible; Takes 2, No. 3AG Glass Fuses.......ea. **$14.30**



Fusible Type

Non-Fusible Type

No. FRS-111 Fixture Hanger

Auxiliary Weight Support for Plug-In Jacks.

No. FRS-111....................................ea. **$.55**

Electric Feedrail 100 Electrical Distribution Systems

Prefabricated Unit Sections—For Cranes, Hoists, Portable Tools and Production Lines

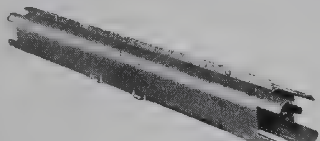
100 Amperes—250 Volts D.C., 575 Volts A.C.

Feedrail "100" Track

10-Foot Lengths Complete with Bus Bars

Straight Track

No.	Each	Type	Ph.	Style	No.	Each	Type	Ph.	Style
FR-100	$86.	Straight	3	Plain	FR-225	$122.	Trans.	1	Plain
FR-101	100.	Straight	3	Door	FR-226	136.	Trans.	1	Door
FR-200	78.	Straight	1	Plain	FR-127	116.	Sect.	3	Plain
FR-201	92.	Straight	1	Door	FR-128	130.	Sect.	3	Door
FR-125	130.	Transfer	3	Plain	FR-227	108.	Sect.	1	Plain
FR-126	144.	Transfer	3	Door	FR-228	122.	Sect.	1	Door



Sections less than 10 feet: fraction of foot consider extra foot; multiply by per foot price of corresponding 10-foot straight section, and for: **Straight,** add $24.; **Transfer,** $68., 1 flared end $112., 2 flared ends; **Sectionalizing,** add $54. for 1 sect. end. For feed box add $25. for each used in section.

10-Foot Lengths Without Bus Bars

No.	Each	Type	Style	No.	Each	*Type	Style
FR-130	$50.	Straight	Plain	FR-132	$80.	Transfer	Plain
FR-131	64.	Straight	Door	FR-133	94.	Transfer	Door

*One flared end.

Sections less than 10 feet: long fraction of foot consider extra foot; multiply by per foot price of corresponding 10-foot straight section, and for **Straight,** add $12.; **Transfer,** $42., 1 flared end, $72., 2 flared ends.

Curved Track

90° Curves Complete with Bus Bars

Radius Feet	3-Ph. No.	1-Ph. No.	Each	Radius Feet	3-Ph. No.	1-Ph. No.	Each
3	FR-113	FR-213	$220.	6½	FR-121	FR-221	$280.
4½	FR-114	FR-214	250.	7½	FR-112	FR-212	290.
5½	FR-111	FR-211	260.	...	....	....	....

Information on track with other radii and degree arc will be furnished on request.

Feedrail "100" Accessories

No.	Each	Description	No.	Each	Description
†FR-102	$7.00	Coupl. Plate Set	FR-108G	$18.00	End F.B. w/Cable Grip
FR-103	13.00	Center Feed Box			
FR-105	2.00	Clevis Support	FR-124	7.00	Trans. Point Hanger Set
FR-107	5.00	Dead End Cap			
FR-108	13.00	End F.B. Revers	FR-129	16.00	Sectional Insulator

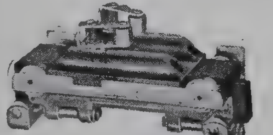
†Furnished without charge with each section of track.

Feedrail "100" Trolleys

Trolleys without Cabinets

250 V. D.C.—575 V. A.C.—Non-Fusible

Standard Type



Standard Type

For straight and curved track, radius 5½ feet or over.

No.	Each	Ph.	Amps.	Contact
FR-34	$27.00	1	20	Roller
FR-90	33.00	1	30	Brush
FR-24	31.00	3	20	Roller
FR-80	40.00	3	30	Brush

Short Radius C Type

For straight and curved track, minimum radius 2½ feet.

No.	Each	Ph.	Amps.	Contact
FR-36	$27.00	1	20	Roller
FR-91	33.00	1	30	Brush
FR-26	31.00	3	20	Roller
FR-81	40.00	3	30	Brush

Heavy Duty D Type

For high amperage on straight and curved track, minimum radius 2½ feet.

No.	Each	Ph.	Amps.	Contact
FR-37	$56.00	1	40	Roller
FR-92	68.00	1	60	Brush
FR-27	64.00	3	40	Roller
FR-82	82.00	3	60	Brush

Crane and Hoist Type Trolleys

Non-Fusible—30 Amperes

250 Volts D.C. or 575 Volts A.C.

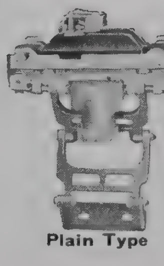
Plain Type

For track without transfer points or curves with radius of 5½ feet or over.

All brush contact.

No. FR-6, 3 Phase, 7½ Hp. at 220 V., 15 Hp. at 440 V., 20 Hp. at 550 V., A.C.........each **$57.00**

No. FR-66, 1 Ph., 3 Hp., 220 V. A.C., 3 Hp., 230 V. D.C.; Specify Type in Ordering......each **50.00**



Plain Type

Crane and Hoist Type Trolleys

Short Radius C Type

For track without transfer points or curves, minimum radius 2½ feet. All brush contact.

No. FR-6C, 3 Phase, 7½ Hp. at 220 V., 15 Hp. at 440 V., 20 Hp. at 550 V., A.C...............each **$57.00**

No. FR-66C, 1 Ph., 3 Hp., 220 V., A.C., 3 Hp., 230 V., D.C.; Specify Type..................each **50.00**

Non-Fusible—60 Amperes—Heavy Duty D Type

For high amperage on tracks without transfer points. Minimum radius 2½ feet. All brush contact.

No. FR-6D, 3 Ph., 15 Hp. at 220 V., 30 Hp. at 440 V., 40 Hp. at 550 V., A.C...............each **$103.00**

No. FR-66D, 1 Ph., 7½ Hp., 220 V., A.C., 7½ Hp., 230 V., D.C.; Spec. Type....................each **89.00**

Transfer Type Trolleys

Non-Fusible—30 Amperes

For track with transfer points or curves, minimum radius 2½ feet. Brush contact.

Plain Type

No. FR-64, 1 Ph., 3 Hp., 220 V., A.C., 3 Hp., 230 V., D.C.; Specify Type.....................each **$72.00**

No. FR-74, 3 Ph., 7½ Hp. at 220 V., 15 Hp. at 440 V., 20 Hp. at 550 V., A.C...................each **79.00**

Heavy Duty Type

No. FR-64D, Like No. FR-64...............each **$133.00**

No. FR-74D, Like No. FR-74...............each **147.00**

Use type C and D trolleys on curve track less than 5½ foot radius. All trolleys furnished C or D by adding suffix C or D to number. Type D with receptacles of 440 volt fuse blocks, maximum capacity, 30 amps.

Trolleys with Bevelled Type Cabinets

With Receptacles

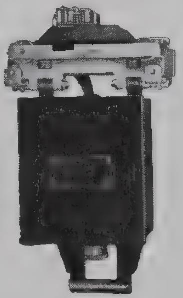
			Non-Fusible			Fusible		
Amps.	Ph.	Contact	No.	Each	A.C. Volts	No.	Each	A.C. Volts
20	1	Roller	FR-38	$62.00	575	FR-30	$71.00	250
20	3	Roller	FR-12	66.00	575	FR-10	80.00	250
20	1	Brush	FR-62	68.00	575	FR-60	77.00	250
20	3	Brush	FR-72	75.00	575	FR-70	89.00	250
20	3	Roller	FR-312	70.00	575	FR-310	84.00	250
30	3	Brush	FR-372	79.00	575	FR-370	93.00	250

No. FR-1 Motor Starters and Ever-Lok Receptacles

No. FR-1, Roller Contact, 3 Phase, 220–440 Volt, A.C., 2 Horsepower; Specify Voltage.........each **$121.00**

Trolleys with Box and Hanger Type Cabinets

Box Type—Without Receptacles Fusible



Box Type

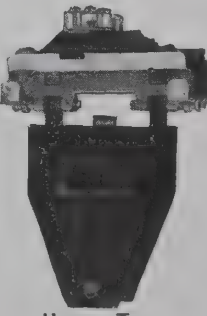
No.	Each	Amperes	A.C. Volts	Phase	Contact
‡FR-29	$51.00	20	250	1	Roller
‡FR-9	58.00	20	250	3	Roller
FR-39	53.00	20	250	1	Roller
FR-19	62.00	20	250	3	Roller
‡FR-96	57.00	30	250	1	Brush
‡FR-86	67.00	30	250	3	Brush
FR-97	59.00	30	250	1	Brush
FR-87	71.00	30	250	3	Brush
‡FR-23	71.00	20	575	1	Roller
‡FR-43	84.00	20	575	3	Roller
‡FR-98	77.00	30	575	1	Brush
‡FR-88	93.00	30	575	3	Brush

Non-Fusible—Without Receptacles

575 A.C.—250 D.C.

			Box Type		Hanger Type	
Amps.	Ph.	Contact	No.	Each	No.	Each
20	1	Roller	FR-31	$44.00	FR-35	$40.00
20	3	Roller	FR-41	48.00	FR-5	44.00
30	1	Brush	FR-94	50.00	FR-95	46.00
30	3	Brush	FR-84	57.00	FR-85	53.00

			Fusible ‡Box Type Cabinets		Non-Fusible §Hanger Type Cabinets	
Amps.	Ph.	Contact	No.	Each	No.	Each
20	1	Roller	FR-32	$89.00	FR-33	$58.00
20	3	Roller	FR-2	102.00	FR-3	62.00
20	3	Roller	FR-302	106.00	FR-303	66.00
20	1	Brush	FR-99	95.00	FR-93	64.00
20	3	Brush	FR-89	111.00	FR-83	71.00
30	3	Brush	FR-389	115.00	FR-383	75.00



Hanger Type

‡Open type fuse blocks; other fusible trolleys, dead front fuse blocks. Fuses not included. §Ever-lok Receptacles.

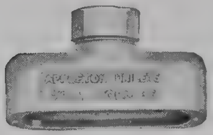
Form 35 No-Thread Unilet Bodies

Bulletin 1000

For Use with Rigid Conduit (Heavy Wall) and Electrical Metallic Tubing

Cadmium

Type A



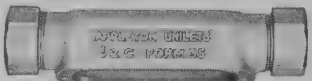
	For Rigid Conduit (Heavy-Wall)			For Electrical Metallic Tubing		
Size In.	No.	Std. Pkg.	Wt., Lb. Std. Pkg.	No.	Std. Pkg.	Wt., Lb. Std. Pkg.
½	A1351	100	78	A2351	100	75
¾	A1352	50	51	A2352	50	48
1	A1353	20	34	A2353	20	30
1¼	A1354	20	65	A2354	20	62
1½	A1355	10	35	A2355	10	34
2	A1356	5	37	A2356	5	35
2½	A1357	5	60	......	..	..
3	A1358	5	75	......	..	..
3½	A1359	5	85	......	..	..
4	A1360	5	100	......	..	..

Type B

APPLETON UNILETS
½ B FORM35

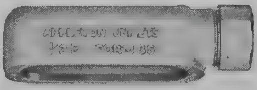
½	B1351	100	78	B2351	100	75
¾	B1352	50	51	B2352	50	48
1	B1353	20	34	B2353	20	30
1¼	B1354	20	65	B2354	20	62
1½	B1355	10	35	B2355	10	34
2	B1356	5	37	B2356	5	35
2½	B1357	5	60	......	..	..
3	B1358	5	75	......	..	..
3½	B1359	5	85	......	..	..
4	B1360	5	100	......	..	..

Type C



½	C1351	100	90	C2351	100	85
¾	C1352	50	72	C2352	50	65
1	C1353	20	40	C2353	20	34
1¼	C1354	20	68	C2354	20	69
1½	C1355	10	44	C2355	10	43
2	C1356	5	43	C2356	5	41
2½	C1357	5	80	......	..	..
3	C1358	5	100	......	..	..
3½	C1359	5	120	......	..	..
4	C1360	5	140	......	..	..

Type E



½	E1351	100	78	E2351	100	75
¾	E1352	50	51	E2352	50	48
1	E1353	20	34	E2353	20	30
1¼	E1354	20	65	E2354	20	62
1½	E1355	10	35	E2355	10	34
2	E1356	5	37	E2356	5	35
2½	E1357	5	60	......	..	..
3	E1358	5	75	......	..	..
3½	E1359	5	85	......	..	..
4	E1360	5	100	......	..	..

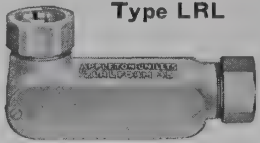
Form 35 No-Thread Unilet Bodies

Bulletin 1000

For Use with Rigid Conduit (Heavy-Wall) and Electrical Metallic Tubing

Cadmium

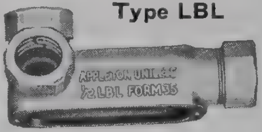
Type LRL



This type of body has double opening with blank cover on one side and can be used either as type LL or LR by changing the cover from one side to the other.

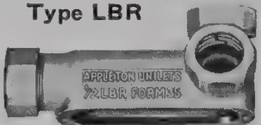
	For Rigid Conduit Heavy-Wall			For Electrical Metallic Tubing		
Size In.	No.	Std. Pkg.	Wt., Lb. Std. Pkg.	No.	Std. Pkg.	Wt., Lb. Std. Pkg.
½	LRL1351	100	95	LRL2351	100	88
¾	LRL1352	50	81	LRL2352	50	75
1	LRL1353	20	44	LRL2353	20	40
1¼	LRL1354	20	72	LRL2354	20	70
1½	LRL1355	10	40	LRL2355	10	39
2	LRL1356	5	42	LRL2356	5	41
2½	LRL1357	5	85	....	...	...
3	LRL1358	5	105	....	...	...
3½	LRL1359	5	125	....	...	...
4	LRL1360	5	145	....	...	...

Type LBL



½	LBL1351	100	112	LBL2351	100	100
¾	LBL1352	50	75	LBL2352	50	65
1	LBL1353	20	52	LBL2353	20	48
1¼	LBL1354	10	34	LBL2354	10	32
1½	LBL1355	10	38	LBL2355	10	36
2	LBL1356	5	32	LBL2356	5	30

Type LBR



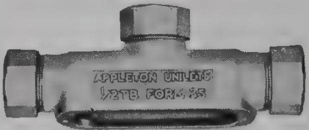
½	LBR1351	100	112	LBR2351	100	100
¾	LBR1352	50	75	LBR2352	50	65
1	LBR1353	20	52	LBR2353	20	48
1¼	LBR1354	10	34	LBR2354	10	32
1½	LBR1355	10	38	LBR2355	10	36
2	LBR1356	5	32	LBR2356	5	30

Type TA

APPLETON UNILETS
½TA FORM 35

½	TA1351	30	38	TA2351	30	36
¾	TA1352	30	44	TA2352	30	41
1	TA1353	20	56	TA2353	20	54
1¼	TA1354	5	20	TA2354	5	18
1½	TA1355	5	24	TA2355	5	21
2	TA1356	5	32	TA2356	5	30

Type TB



½	TB1351	50	56	TB2351	50	50
¾	TB1352	25	44	TB2352	25	40
1	TB1353	15	52	TB2353	15	45
1¼	TB1354	10	34	TB2354	10	32
1½	TB1355	10	38	TB2355	10	36
2	TB1356	5	32	TB2356	5	30

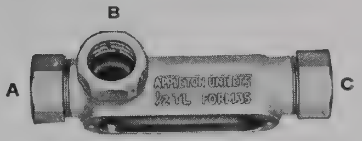
Form 35 No-Thread Unilet Bodies

Bulletin 1000

For Use with Rigid Conduit (Heavy Wall) and Electrical Metallic Tubing

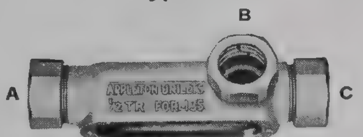
Cadmium

Type TL



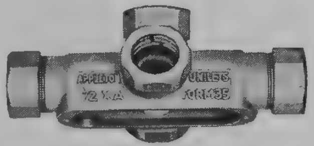
Size, In. A	B	C	For Rigid Conduit (Heavy-Wall) No.	Std. Pkg.	Wt., Lb. Std. Pkg.	For Electrical Metallic Tubing No.	Std. Pkg.	Wt., Lb. Std. Pkg.
½	½	½	TL1351	50	55	TL2351	50	50
½	¾	½	TL13521	25	28	TL23521	25	23
¾	½	¾	TL13512	25	23	TL23512	25	22
¾	¾	¾	TL1352	25	38	TL2352	25	33
1	½	1	TL13513	20	30	TL23513	20	28
1	¾	1	TL13523	20	35	TL23523	20	32
1	1	1	TL1353	20	52	TL2353	20	48
1¼	1¼	1¼	TL1354	10	34	TL2354	10	32
1½	1½	1½	TL1355	10	38	TL2355	10	36

Type TR



½	½	½	TR1351	50	55	TR2351	50	50
½	¾	½	TR13521	25	28	TR23521	25	23
¾	½	¾	TR13512	25	23	TR23512	25	22
¾	¾	¾	TR1352	25	38	TR2352	25	33
1	½	1	TR13513	20	30	TR23513	20	28
1	¾	1	TR13523	20	35	TR23523	20	32
1	1	1	TR1353	20	52	TR2353	20	48
1¼	1¼	1¼	TR1354	10	34	TR2354	10	32
1½	1½	1½	TR1355	10	38	TR2355	10	36

Type XA



Size In.	For Rigid Conduit (Heavy-Wall) No.	Std. Pkg.	Wt., Lb. Std. Pkg.	For Electrical Metallic Tubing No.	Std. Pkg.	Wt., Lb. Std. Pkg.
¼	XA1351	50	75	XA2351	50	60
¾	XA1352	25	48	XA2352	25	45
1	XA1353	20	60	XA2353	20	48

Type T

Regular

APPLETON UNILETS
½ T FORM 35

½	T1351	100	110	T2351	100	100
¾	T1352	50	76	T2352	50	65
1	T1353	20	52	T2353	20	48
1¼	T1354	20	70	T2354	20	68
1½	T1355	10	49	T2355	10	48
2	T1356	5	50	T2356	5	49
2½	T1357	5	105	....	...	...
3	T1358	5	120	....	...	...
3½	T1359	5	150	....	...	...
4	T1360	5	165	....	...	...

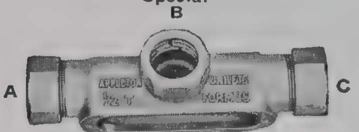
Form 35 No-Thread Unilet Bodies

Bulletin 1000

For Use with Rigid Conduit (Heavy Wall) and Electrical Metallic Tubing—Cadmium

Type T

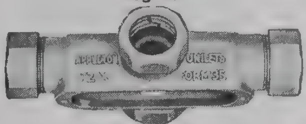
Special



Size, Inches A	B	C	For Rigid Conduit (Heavy Wall) No.	Std. Pkg.	Wt., Lb. Std. Pkg.	For Electrical Metallic Tubing No.	Std. Pkg.	Wt., Lb. Std. Pkg.
½	¾	½	T13521	100	118	T23521	100	112
½	1	½	T13531	100	126	T23531	100	122
¾	½	¾	T13512	50	45	T23512	50	43
¾	1	¾	T13532	50	53	T23532	50	51
¾	1¼	¾	T13542	50	98	T23542	50	95
¾	1½	¾	T13552	50	120	T23552	50	112
1	½	1	T13513	20	48	T23513	20	44
1	¾	1	T13523	20	54	T23523	20	50
1	1¼	1	T13543	20	58	T23543	20	54
1	1½	1	T13553	20	72	T23553	20	68
1	2	1	T13563	20	90	T23563	20	85
1¼	½	1¼	T13514	20	62	T23514	20	60
1¼	¾	1¼	T13524	20	65	T23524	20	62
1¼	1	1¼	T13534	20	78	T23534	20	72
1¼	1½	1¼	T13554	10	45	T23554	10	43
1¼	2	1¼	T13564	5	30	T23564	5	28
1½	½	1½	T13515	10	40	T23515	10	38
1½	¾	1½	T13525	10	52	T23525	10	52

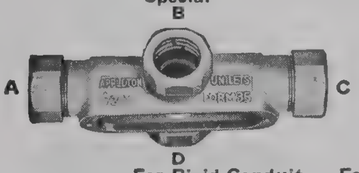
Type X

Regular



Size In.	For Rigid Conduit (Heavy-Wall) No.	Std. Pkg.	Wt., Lb. Std. Pkg.	For Electrical Metallic Tubing No.	Std. Pkg.	Wt., Lb. Std. Pkg.
½	X1351	75	95	X2351	75	90
¾	X1352	50	94	X2352	50	88
1	X1353	20	56	X2353	20	52
1¼	X1354	20	78	X2354	20	77
1½	X1355	15	64	X2355	15	63
2	X1356	5	55	X2356	5	53
2½	X1357	5	120	......	5	..
3	X1358	5	135	......	5	..
3½	X1359	5	170	......	5	..
4	X1360	5	190	......	5	..

Special

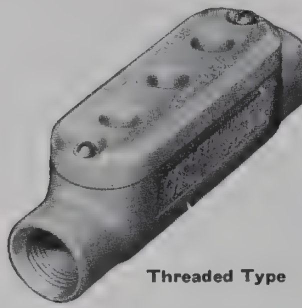


Size, Inches A	B	C	D	For Rigid Conduit (Heavy-Wall) No.	Std. Pkg.	Wt., Lb. Std. Pkg.	For Electrical Metallic Tubing No.	Std. Pkg.	Wt., Lb. Std. Pkg.
¾	½	½	½	X13512	50	65	X23512	50	59
¾	½	¾	½	X13521	50	75	X23521	50	68
1	½	¾	½	X135312	20	40	X235312	20	36
1	¾	¾	¾	X13523	20	35	X23523	20	32
1	½	1	½	X13531	20	35	X23531	20	30
1	¾	1	¾	X13532	20	37	X23532	20	32
1¼	½	1	½	X135413	20	67	X235413	20	64
1¼	¾	¾	¾	X13542	20	67	X23542	20	64
1¼	¾	1	¾	X135423	20	69	X235423	20	66
1¼	1	1	1	X13543	20	70	X23543	20	67
1¼	½	1¼	½	X135414	20	68	X235414	20	65
1¼	¾	1¼	¾	X135424	20	72	X235424	20	68
1½	½	1½	½	X13551	10	42	X23551	10	40
1½	½	1¼	½	X135524	10	45	X235524	10	43
1½	¾	1½	¾	X13552	10	46	X23552	10	44
1½	1	1	1	X13553	10	50	X23553	10	48
1½	1	1¼	1	X135534	10	52	X235534	10	50
1½	1	1½	1	X135535	10	55	X235535	10	52

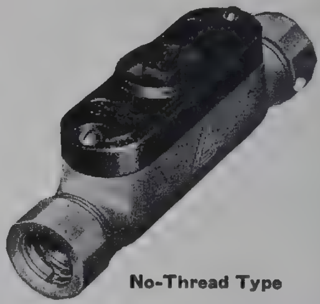
Form 35 Unilets

Bulletin No. 1000

Threaded and No-Thread Types



Threaded Type



No-Thread Type

Form 35 Unilets have bodies of malleable iron for both strength and lightness and a cadmium finish to insure positive resistance to rust and corrosion.

The 35 Line does not supersede any of the present Appleton Unilets but its new design is in addition to the present rectangular ½ to 4-inch sizes inclusive threaded and no-thread Unilets for rigid and thin-wall conduit.

This line does not have cover ear lugs in the wiring body and was designed for use where specifications require fittings without ear lugs.

Outstanding features of the line are as follows:

Unbreakable malleable castings with light walls and increased wiring space.

Smooth castings free from holes, blemishes, and gating marks.

No cover ear lugs in the Unilet body.

Wide flat cover surfaces drilled and tapped at each end for cover screws.

Chamfered edges on all conduit hubs assuring straight and accurate tapping without any sharp or rough edges.

Reinforced and slightly raised blank metal covers.

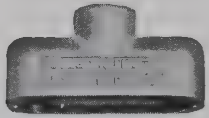
Perfectly flat and smooth porcelain and composition covers.

Moulded receptacles expressly designed for convenient and easy wiring.

Form 35 Threaded Unilet Bodies

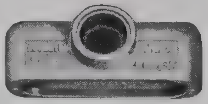
For Use with Rigid Conduit (Heavy Wall)
Cadmium Finish

Type A



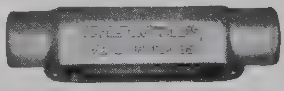
No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.
A351	½	100	70	A357	2½	5	45
A352	¾	50	45	A358	3	5	55
A353	1	20	30	A359	3½	5	65
A354	1¼	20	54	A360	4	5	80
A355	1½	10	30	A362	5	1	34
A356	2	5	32	A363	6	1	57

Type B



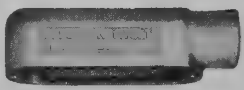
No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.
B351	½	100	70	B356	2	5	32
B352	¾	50	45	B357	2½	5	45
B353	1	20	30	B358	3	5	55
B354	1¼	20	54	B359	3½	5	65
B355	1½	10	30	B360	4	5	80

Type C



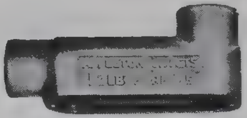
No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.
C351	½	100	80	C356	2	5	33
C352	¾	50	60	C357	2½	5	50
C353	1	20	36	C358	3	5	60
C354	1¼	20	57	C359	3½	5	75
C355	1½	10	34	C360	4	5	95

Type E



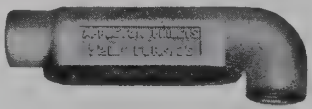
No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.
E351	½	100	70	E356	2	5	32
E352	¾	50	45	E357	2½	5	45
E353	1	20	30	E358	3	5	55
E354	1¼	20	54	E359	3½	5	65
E355	1½	10	30	E360	4	5	80

Type LB



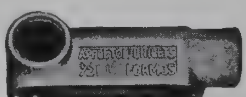
No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt Lb Std Pkg
LB351	½	100	80	LB357	2½	5	50
LB352	¾	50	60	LB358	3	5	60
LB353	1	20	36	LB359	3½	5	75
LB354	1¼	20	57	LB360	4	5	95
LB355	1½	10	34	LB362	5	1	38
LB356	2	5	33	LB363	6	1	61

Type LF



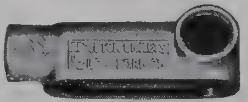
No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt Lb Std Pkg
LF351	½	100	100	LF356	2	5	36
LF352	¾	50	75	LF357	2½	5	60
LF353	1	20	45	LF358	3	5	70
LF354	1¼	20	60	LF359	3½	5	85
LF355	1½	10	40	LF360	4	5	105

Type LL



No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt Lb Std Pkg
LL351	½	100	80	LL356	2	5	33
LL352	¾	50	60	LL357	2½	5	50
LL353	1	20	36	LL358	3	5	60
LL354	1¼	20	57	LL359	3½	5	75
LL355	1½	10	51	LL360	4	5	95

Type LR



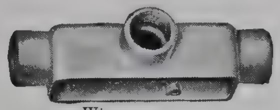
No.	Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt Lb Std Pkg
LR351	½	100	80	LR356	2	5	33
LR352	¾	50	60	LR357	2½	5	50
LR353	1	20	36	LR358	3	5	60
LR354	1¼	20	57	LR359	3½	5	75
LR355	1½	10	51	LR360	4	5	95

Rectangular Threaded Unilet Bodies

Bulletin 1000

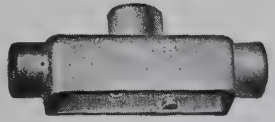
Take Rectangular Covers and Receptacles
Cadmium

Type T



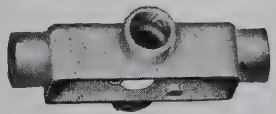
No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
9003	½	100	61	**9103**	2	5	27
9023	¾	50	44	**9123**	2½	5	50
9043	1	20	28	**9143**	3	5	63
9063	1¼	20	49	**9163**	3½	5	103
9083	1½	10	27	**9183**	4	5	123

Type TB



9600	½	100	66	**9700**	2	5	27
9620	¾	50	49	**9720**	2½	5	50
9640	1	20	32	**9740**	3	5	63
9660	1¼	10	26	**9760**	3½	5	103
9680	1½	10	31	**9780**	4	5	123

Type X



9004	½	75	52	**9104**	2	5	31
9024	¾	50	48	**9124**	2½	5	63
9044	1	20	30	**9144**	3	5	68
9064	1¼	20	54	**9164**	3½	5	123
9084	1½	10	31	**9184**	4	5	133

Rectangular Threaded Unilet Bodies

Bulletin 1000

Take Rectangular Covers and Receptacles
Cadmium

Type LRL

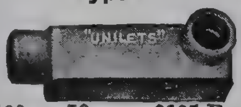
Has double openings with blank cover on one side. Can be used as Type LL or LR by changing cover.

No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
3205-R	½	100	66	**3305-R**	2	5	26
3225-R	¾	50	45	**3325-R**	2½	5	45
3245-R	1	20	29	**3345-R**	3	5	54
3265-R	1¼	20	45	**3365-R**	3½	5	125
3285-R	1½	10	26	**3385-R**	4	5	115

Type LL

9005-L	½	100	56	**9105-L**	2	5	22
9025-L	¾	50	42	**9125-L**	2½	5	45
9045-L	1	20	25	**9145-L**	3	5	54
9065-L	1¼	20	44	**9165-L**	3½	5	125
9085-L	1½	10	26	**9185-L**	4	5	115

Type LR



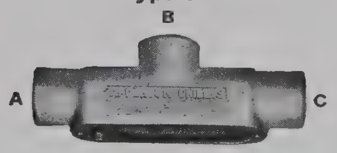
9005-R	½	100	56	**9105-R**	2	5	22
9025-R	¾	50	42	**9125-R**	2½	5	45
9045-R	1	20	25	**9145-R**	3	5	54
9065-R	1¼	20	44	**9165-R**	3½	5	125
9085-R	1½	10	26	**9185-R**	4	5	115

Form 35 Threaded Unilet Bodies

Bulletin No. 1000

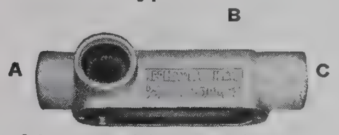
For Use with Rigid Conduit (Heavy Wall)
Cadmium Finish

Type TB



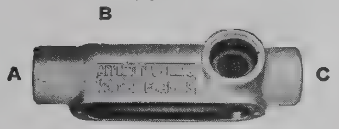
No.	Size, Inches A	Size, Inches B	Size, Inches C	Std. Pkg.	Wt., Lb. Std. Pkg.
TB351	½	½	½	100	95
TB352	¾	¾	¾	50	70
TB3532	¾	1	¾	50	75
TB3513	1	½	1	20	45
TB3523	1	¾	1	20	48
TB353	1	1	1	20	42
TB354	1¼	1¼	1¼	10	28
TB355	1½	1½	1½	10	30
TB356	2	2	2	5	27

Type TL



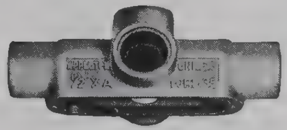
TL351	½	½	½	100	95
TL3521	½	¾	½	100	100
TL3512	¾	½	¾	50	85
TL352	¾	¾	¾	50	70
TL3513	1	½	1	20	40
TL3523	1	¾	1	20	40
TL353	1	1	1	20	42
TL354	1¼	1¼	1¼	10	28
TL355	1½	1½	1½	10	30

Type TR



TR351	½	½	½	100	95
TR3521	½	¾	½	100	100
TR3512	¾	½	¾	50	85
TR352	¾	¾	¾	50	70
TR3513	1	½	1	20	40
TR3523	1	¾	1	20	40
TR353	1	1	1	20	42
TR354	1¼	1¼	1¼	10	28
TR355	1½	1½	1½	10	30

Type XA



No.	Size In.	Std. Pkg.	Wt., Lb. Std. Pkg.	No.	Size In.	Std. Pkg.	Wt., Lb. Std. Pkg
XA351	½	50	65	XA353	1	20	48
XA352	¾	50	80	......	.	..	..

Type T
Regular

T351	½	100	95	**T356**	2	5	34
T352	¾	50	70	**T357**	2½	5	60
T353	1	20	42	**T358**	3	5	70
T354	1¼	20	60	**T359**	3½	5	90
T355	1½	10	38	**T360**	4	5	110

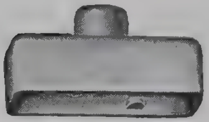
Rectangular Threaded Unilet Bodies

Bulletin 1000

Take Rectangular Covers and Receptacles

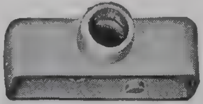
Cadmium

Type A



No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
9000	½	100	53	**9120**	2½	5	41
9020	¾	50	36	**9140**	3	5	48
9040	1	20	23	**9160**	3½	5	85
9060	1¼	20	42	**9180**	4	5	98
9080	1½	10	24	**90220**	5	1	28
9100	2	5	22	**90240**	6	1	38

Type B

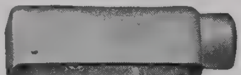


No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
9006	½	100	52	**9106**	2	5	18
9026	¾	50	36	**9126**	2½	5	42
9046	1	20	23	**9146**	3	5	47
9066	1¼	20	41	**9166**	3½	5	115
9086	1½	10	23	**9186**	4	5	103

Type C

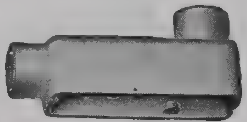
No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
9002	½	100	56	**9102**	2	5	24
9022	¾	50	38	**9122**	2½	5	47
9042	1	20	26	**9142**	3	5	57
9062	1¼	20	44	**9162**	3½	5	90
9082	1½	10	26	**9182**	4	5	115

Type E



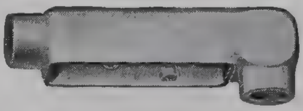
No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
9001	½	100	49	**9101**	2	5	22
9021	¾	50	37	**9121**	2½	5	40
9041	1	20	24	**9141**	3	5	47
9061	1¼	20	41	**9161**	3½	5	85
9081	1½	10	24	**9181**	4	5	95

Type LB



No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
9008	½	100	58	**9108**	2	5	25
9028	¾	50	39	**9128**	2½	5	46
9048	1	20	27	**9148**	3	5	55
9068	1¼	20	46	**9168**	3½	5	100
9088	1½	10	25	**9188**	4	5	110

Type LF



No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
9200	½	100	86	**9300**	2	5	32
9220	¾	50	63	**9320**	2½	5	55
9240	1	20	39	**9340**	3	5	63
9260	1¼	20	66	**9360**	3½	5	109
9280	1½	10	41	**9380**	4	5	120

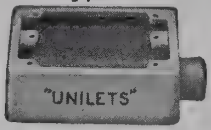
FS Series Shallow Unilet Bodies

Bulletin No. 1000

Threaded—For Rigid Conduit

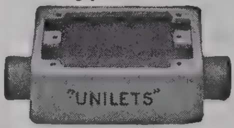
Take covers, flush rectangular wiring devices or plug receptacle housings. Overall dimensions of body, exclusive of hubs: length, 4$\frac{9}{16}$ in.; width, 2$\frac{13}{16}$ in.; depth, 2 in. Furnished without screws for wiring devices. Cadmium finish.

Type FS



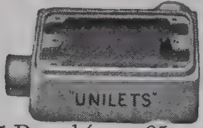
No.	Size In.	Std. Pkg.	Wt.,Lb. Std. Pkg.
7901	½	25	44
7921	¾	25	47
7941	1	15	26

Type FSC



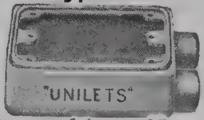
No.	Size In.	Std. Pkg.	Wt.,Lb. Std. Pkg.
7902	½	25	47
7922	¾	25	51
7942	1	15	29

Type FSR



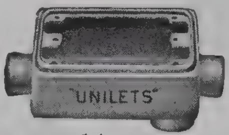
No.	Size In.	Std. Pkg.	Wt.,Lb. Std. Pkg.
7905-R	½	25	46
7925-R	¾	25	51
7945-R	1	15	29

Type FSS



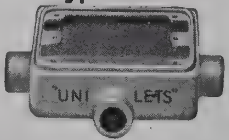
No.	Size In.	Std. Pkg.	Wt.,Lb. Std. Pkg.
7910	½	25	47
7930	¾	25	51

Type FSCA



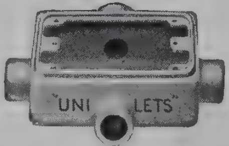
No.	Size In.	Std. Pkg.	Wt.,Lb. Std. Pkg.
7908	½	25	48
7928	¾	25	50
7948	1	15	33

Type FSCT



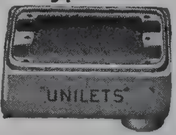
No.	Size In.	Std. Pkg.	Wt.,Lb. Std. Pkg.
7909	½	25	49
7929	¾	25	50
7949	1	15	33

Type FSX



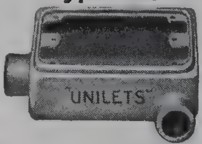
No.	Size In.	Std. Pkg.	Wt.,Lb. Std. Pkg.
7904	½	25	49
7924	¾	25	52
7944	1	15	35

Type FSA



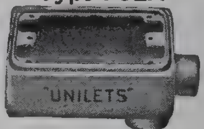
No.	Size In.	Std. Pkg.	Wt.Lb. Std. Pkg.
7906	½	25	45
7926	¾	25	47
7946	1	15	26

Type FSL



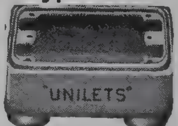
No.	Size In.	Std. Pkg.	Wt.Lb. Std. Pkg.
7905-L	½	25	46
7925-L	¾	25	51
7945-L	1	15	29

Type FSLA



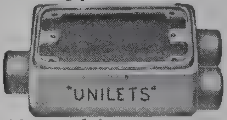
No.	Size In.	Std. Pkg.	Wt.Lb. Std. Pkg.
7907	½	25	47
7927	¾	25	51
7947	1	15	29

Type FSAA



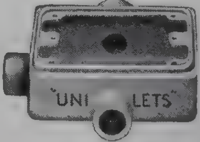
No.	Size In.	Std. Pkg.	Wt.Lb. Std. Pkg.
7920	½	25	47
7940	¾	25	51
7950	1	15	29

Type FSCC



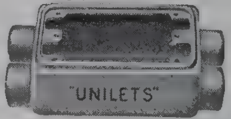
No.	Size In.	Std. Pkg.	Wt.Lb. Std. Pkg.
7911	½	25	46
***7931**	¾	25	49
***7951**	1	15	32
†7971	¾	25	53

Type FST



No.	Size In.	Std. Pkg.	Wt.Lb. Std. Pkg.
7903	½	25	48
7923	¾	25	50
7943	1	15	33

Type FSCD



No.	Size In.	Std. Pkg.	Wt.Lb. Std. Pkg.
7913	½	25	48
7933	¾	25	50

*Hubs at right in illus. are ½ inch. †All hubs are ¾ inch.

Rectangular Covers

Bulletin 1000

For Threaded and No-Thread Unilet Bodies

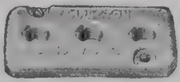
For Unilet bodies with rectangular openings. Porcelain, composition and metal covers of same size may be assorted to make a standard package, regardless of style of cover.

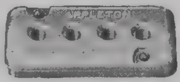
Furnished with fastening screws.

Porcelain with Wire Holes

1-Wire

2-Wire


3-Wire


4-Wire

			*1-Wire Standard		*1-Wire Special		2-Wire		3-Wire		4-Wire	
Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Diam. Hole In.	No.	Diam. Hole In.	No.	Diam. Hole In.	No.	Diam. Hole In.	No.	Diam. Hole In.
½	200	35	6001	13/32	6001-S	5/8	6002	3/8	6003	5/16	6004	5/16
¾	100	25	6021	7/16	6021-S	25/32	6022	3/8	6023	3/8	6024	5/16
1	50	20	6101	½	6101-S	1	6102	19/32	6103	19/32	6104	13/32
1¼ or 1½	20	14	6131	½	6131-S	1⅛	6132	13/16	6133	13/16	6134	19/32
†2	10	9	6201	1⅜	......	...	§6202	13/16	6203	13/16	¶6204	5/8
‡2	5	6	6301	1 25/32	......	...	6302	1	6303	1	6304	1
2½ or 3	5	13	6321	2 5/16	......	...	6322	1 7/16	6323	1 7/16	6324	1 7/16
3½ or 4	5	30	6361	3¼	......	...	6362	1 15/16	6363	1 15/16	6364	1 15/16
5	1	45	6371	3¼	......	...	6372	2	6373	2	6374	1⅞
6	1	45	6391	3¼	......	...	6392	2¼	6393	2¼	6394	1⅞

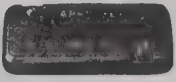
Composition with Wire Holes

1-Wire

2-Wire

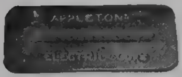
3-Wire

4-Wire


Blank

			*1-Wire Standard		*1-Wire Special		2-Wire	
Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Diam. Hole In.	No.	Diam. Hole In.	No.	Diam. Hole In.
½	200	20	601	13/32	601-S	5/8	602	5/16
¾	100	13	621	7/16	621-S	25/32	622	3/8
1	50	12½	641	½	641-S	1	642	19/32
1¼ or 1½	20	6	661	½	661-S	1⅜	662	13/16
2	5	4	701	1 25/32	701-S	½	702	1
2½ or 3	5	8	721	2 5/16	721-S	½	722	1 7/16
3½ or 4	5	20	761	3¼	761-S	½	762	1 15/16
5	1	30	801	3¼	.....	...	802	2
6	1	30	821	3¼	.....	...	822	2¼

			3-Wire		4-Wire		
Size In.	Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Diam. Hole In.	No.	Diam. Hole In.	Blank No.
½	200	20	603	5/16	604	5/16	600
¾	100	13	623	3/8	624	5/16	620
1	50	12½	643	19/32	644	13/32	640
1¼ or 1½	20	6	663	13/16	664	19/32	660
2	5	4	703	1	704	1	700
2½ or 3	5	8	723	1 7/16	724	1 7/16	720
3½ or 4	5	20	763	1 15/16	764	1 15/16	760
5	1	30	803	2	804	1⅞	800
6	1	30	823	2¼	824	1⅞	820


Flat

Blank Metal Covers

Cadmium Finish

Flanged

		Flat				Flanged	
		Steel		Malleable		Steel	
Size In.	Std. Pkg.	No.	Wt., Lb. Std. Pkg.	No.	Wt., Lb. Std. Pkg.	No.	Wt., Lb. Std. Pkg.
½	200	6000	20	6000C	50	6000F	32
¾	100	6020	15	6020C	40	6020F	16
1	50	6100	11	6100C	30	6100F	12
1¼ or 1½	20	6130	6	6130C	18	6130F	16
‡2	10	6200	3	6200C	10	....	..
2	5	6300	2½	6300C	10	6300F	7
2½ or 3	5	6320	5½	6320C	15	6320F	5
3½ or 4	5	6360	13	6360C	20	6360F	10

*Standard and special 1-wire covers differ only in the diameter of wire hole. Standard 1-wire covers will be furnished at all times unless special covers are specified.

†For thin wall conduit.

‡For heavy wall conduit.

§Has 2-wire holes and one knockout; when knockout is removed, can be used as a 3-wire cover.

¶Has 4-wire holes and one knockout; when knockout is removed, can be used as a 5-wire cover.

Information on covers for more than 4 wires, on application.

Covers

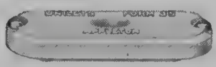
Bulletin No. 1000

For Form 35 Threaded and No-Thread Unilet Bodies

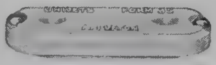
Furnished with Fastening Screws and Fiber Retaining Washers

Porcelain with Wire Holes

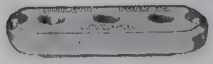
1-Wire Standard



1-Wire Special



2-Wire



3-Wire

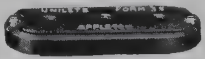
Size Inches	Std. Pkg.	Unit Pkg.	Wt., Lb. Std. Pkg.	*1-Wire Standard No.	*1-Wire Standard Diam. Hole In.	*1-Wire Special No.	*1-Wire Special Diam. Hole In.	2-Wire No.	2-Wire Diam. Hole In.	3-Wire No.	3-Wire Diam. Hole In.	4-Wire No.	4-Wire Diam. Hole In.
½	200	20	40	35001	13/32	35011	5/8	35002	3/8	35003	5/16	35004	5/16
¾	100	20	25	35021	7/16	35031	25/32	35022	3/8	35023	3/8	35024	5/16
1	50	20	20	35041	1/2	35051	1	35042	19/32	35043	19/32	35044	13/32
1¼, 1½	20	10	16	35061	1/2	35071	1 1/8	35062	13/16	35063	13/16	35064	19/32
2	5	5	12	35081	1 25/32	.....	...	35082	1	35083	1	35084	1
2½, 3	5	5	18	36001	2 5/16	.....	...	36002	1 7/16	36003	1 7/16	36004	1 7/16
3½, 4	5	5	22	36021	3 1/4	....	...	36022	1 15/16	36023	1 15/16	36024	1 15/16

Size Inches	Std. Pkg.	Unit Pkg.	Wt., Lb. Std. Pkg.	5-Wire No.	5-Wire Diam. Hole In.	6-Wire No.	6-Wire Diam. Hole In.	7-Wire No.	7-Wire Diam. Hole In.	8-Wire No.	8-Wire Diam. Hole In.
½	200	20	40	.....	...	.....	...	.....	...	.....	...
¾	100	20	25	35025	5/16	35026	5/16	.....	...	.....	...
1	50	20	20	35045	13/32	35046	3/8	35047	11/32	35048	5/16
1¼, 1½	20	10	16	35065	17/32	35066	1/2	35067	1/2	35068	7/16
2	5	5	12	35085	13/16	†35086	5/8	†35087	5/8	†35088	5/8
2½, 3	5	5	18	36005	1 1/16	36006	7/8	36007	25/32	36008	25/32
3½, 4	5	5	22	36025	1 1/2	36026	1 3/16	36027	1	36028	1

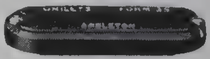
Composition with Wire Holes

1-Wire Standard

2-Wire



3-Wire



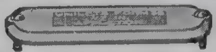
Blank Cover

Size Inches	Std. Pkg.	Unit Pkg.	Wt., Lb. Std. Pkg.	*1-Wire Standard No.	*1-Wire Standard Diam. Hole In.	*1-Wire Special No.	*1-Wire Special Diam. Hole In.	2-Wire No.	2-Wire Diam Hole In.	3-Wire No.	3-Wire Diam. Hole In.	4-Wire No.	4-Wire Diam. Hole In.
½	200	20	25	35201	13/32	35211	5/8	35202	3/8	35203	5/16	35204	5/16
¾	100	20	15	35221	7/16	35231	25/32	35222	3/8	35223	3/8	35224	5/16
1	50	20	14	35241	1/2	35251	1	35242	19/32	35243	19/32	35244	13/32
1¼, 1½	20	10	12	35261	1/2	35271	1 1/8	35262	13/16	35263	13/16	35264	19/32
2	5	5	8	35281	1 25/32	.....	...	35282	1	35283	1	35284	1
2½, 3	5	5	16	35401	2 5/16	.....	...	35402	1 7/16	35403	1 7/16	35404	1 7/16
3½, 4	5	5	25	35421	3 1/4	.....	...	35422	1 15/16	35423	1 15/16	35424	1 15/16
5	1	1	7	.....	...	.....	...	36052	...	36053	...	36054	...
6	1	1	9	.....	...	.....	...	36062	...	36063	...	36064	...

Size Inches	Std. Pkg.	Unit Pkg.	Wt., Lb. Std. Pkg.	5-Wire No.	5-Wire Diam. Hole In.	6-Wire No.	6-Wire Diam. Hole In.	7-Wire No.	7-Wire Diam. Hole In.	8-Wire No.	8-Wire Diam. Hole In.	Blank No.	Blank Diam. Hole In.
½	200	20	25	.....	...	.....	...	.....	...	.....	...	35200	...
¾	100	20	15	35225	5/16	35226	5/16	.....	...	.....	...	35220	...
1	50	20	14	35245	13/32	35246	3/8	35247	11/32	35248	5/16	35240	...
1¼, 1½	20	10	12	35265	17/32	35266	1/2	35267	1/2	35268	1/2	35260	...
2	5	5	8	35285	13/16	†35286	5/8	†35287	5/8	†35288	5/8	35280	...
2½, 3	5	5	16	35405	1 1/16	35406	7/8	35407	25/32	35408	25/32	35400	...
3½, 4	5	5	25	35425	1 1/2	35426	1 3/16	35427	1	35428	1	35420	...
5	1	1	7	36055	...	.....	...	.....	...	.....	...	.....	...
6	1	1	9	36065	...	.....	...	.....	...	.....	...	.....	...

Blank Covers

Cadmium Finish



Size Inches	Std. Pkg.	Unit Pkg.	Blank Steel No.	Blank Steel Wt. Lb. Std. Pkg.	Blank Malleable No.	Blank Malleable Wt.Lb. Std. Pkg.
½	200	50	35000	30	35010	50
¾	100	50	35020	20	35030	35
1	50	25	35040	12	35050	20
1¼, 1½	20	20	35060	14	35070	18
2	5	5	35080	10	35090	15
2½, 3	5	5	36000	15	36010	28
3½, 4	5	5	36020	21	36030	35
5	1	1	36050	11	.....	..
6	1	1	36060	13	.....	..

*Standard and special 1-wire covers differ only in diameter of hole. Standard will be furnished unless special is specified on order.

†Nos. 35288 and 35088 have 6-wire holes and 2 knockouts; when 1 knockout is removed, can be used as a 7-wire cover; when 2 knockouts are removed, can be used as an 8-wire cover.

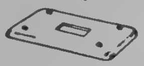
Covers

Bulletin No. 1000

For FS and FD Series Unilet Bodies

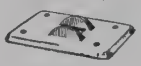
Cadmium

No. 7990, Cast



For square handle tumbler switches.
Standard package, 50.
Weight, package, 28 lb.

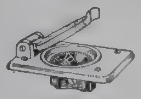
No. 7990-A, Cast



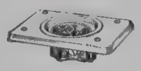
For square handle toggle switches (with protecting guard). Standard pkg., 50.
Weight, package, 31 lb.

With Receptacles for Standard Attachment Plug Cap

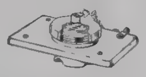
15 Amperes, 125 Volts or 10 Amperes, 250 Volts



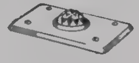
With Spring Door



Without Door



With Brass Cap



With Ruby Jewel

No.	With Spring Door Description	Std. Pkg.	Wt., Lb. Std. Pkg.
†7993	2-Wire, 2-Pole	25	30
†7993A	*2-Wire, 3-Pole	25	31
†7993B	3-Wire, 3-Pole	25	32
	Without Door		
‡7994	2-Wire, 2-Pole	25	19
‡7994A	*2-Wire, 3-Pole	25	20
‡7994B	3-Wire, 3-Pole	25	21
	With Brass Cap		
†7992	2-Wire, 2-Pole	25	42
†7992A	*2-Wire, 3-Pole	25	43
†7992B	3-Wire, 3-Pole	25	44
	With Ruby Jewel		
†7991	For Pilot Lamp Flush Receptacles	50	28

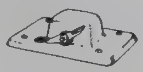
*Third pole grounded. †With Gasket. ‡Without Gasket.

Vaportight Covers

Cadmium Finish

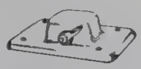
For single gang FS series of threaded malleable Unilet bodies. Take toggle flush, double push button, momentary contact switches, etc.

No. 8140



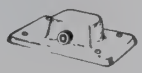
For double push-button switches. Std. pkg., 25.
Weight, package, 16 lb.

§No. 8141



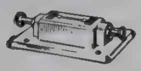
For momentary contact switches. Std. pkg., 25.
Weight, package, 16 lb.

No. 8142



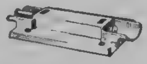
For key operation with standard double push-button switches. With key.
Standard package, 25.
Weight, package, 15 lb.

No. 8144



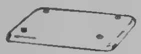
For square handle tumbler and toggle flush switches.
Standard package, 25.
Weight, package, 16 lb.

No. 8144-B



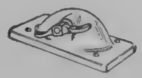
For square handle tumbler and toggle flush switches (with guards).
Standard package, 25.
Weight, package, 16 lb.

No. 8145



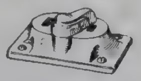
Blank cover.
Standard package, 25.
Weight, package, 13 lb.

No. 8148



Rocker type for square handle tumber and toggle flush switches.
Standard package, 25.
Weight, package, 16 lb.

§No. 8149



For switches and starters.
Standard package, 25.
Weight, package, 20 lb.

§For use on FD series single-gang Unilets only.

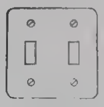
Covers

Bulletin 1000

For FS and FD Series 2-Gang Unilet Bodies

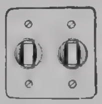
Cadmium Finish

No. 14090



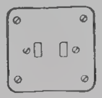
For square handle tumbler and toggle flush switches.
Standard package, 25; weight 10 pounds.

No. 14090-B



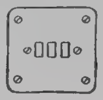
For square handle toggle flush switches. With protecting guard.
Standard package, 25; weight 11 pounds.

No. 14062



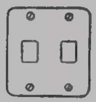
For Dugle flush tumbler switch.
Standard package, 25; weight, 10 pounds.

No. 14063



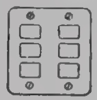
For Trigle flush tumbler switch.
Standard package, 25; weight, 10 pounds.

No. 14065



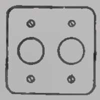
Two-gang to take 2 P & S-Despard, Bryant IL or Hubbell Interchangeable devices.
Standard package, 25; weight 11 pounds.

No. 14066



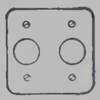
Two-gang for 4 or 6 P & S-Despard, Bryant IL or Hubbell Interchangeable devices.
Standard package, 25; weight 11 pounds.

No. 14053



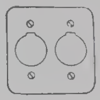
For round flush receptacles. Without lift cover.
Standard package, 25; weight, 10 pounds.

No. 14053-A



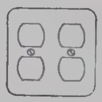
For Hubbell 2-wire No. 7210, or 3-wire No. 7310 twist-lock flush receptacles.
Standard package, 25; weight, 10 pounds.

No. 14054



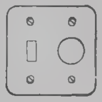
For round flush receptacles. With lift cover.
Standard package, 25; weight, 12 pounds.

No. 14058



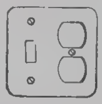
For standard duplex flush receptacles.
Standard package, 25; weight, 8 pounds.

No. 14075



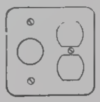
For toggle flush switches and round flush receptacles. Without lift cover.
Standard package, 25; weight, 10 pounds.

No. 14076



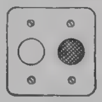
For toggle flush switches and standard duplex flush receptacles.
Standard package, 25; weight, 10 pounds.

No. 14083



For round flush, receptacles and standard duplex flush receptacles.
Standard package, 25; weight, 10 pounds.

No. 14095



For round flush receptacles and pilot lamp flush receptacles. Furnished with ruby jewel.
Standard package, 25; weight, 12 pounds.

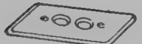
Covers

For FS and FD Series Unilet Bodies

Cadmium Finish

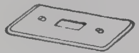
Bulletin No. 1000

No. 7960



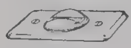
For double push button switches.
Standard package, 50; weight, 12 pounds.

No. 7963



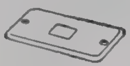
For Square handle tumbler and toggle flush switches.
Standard package, 50; weight, 12 pounds.

No. 7963-A



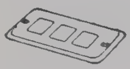
For Square Handle tumbler and toggle flush switches, with guard.
Standard package, 50; weight, 13 pounds.

No. 7965



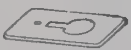
One-gang for 1 P & S-Despard, Bryant IL or Hubbell Interchangeable devices.
Standard package, 50; weight, 13 pounds.

No. 7965-A



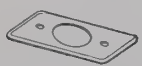
One-gang for 2 or 3 P & S-Despard, Bryant IL or Hubbell Interchangeable devices.
Standard package, 50; weight, 13 pounds.

No. 7967



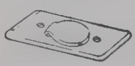
For Arrow No. 556 combination receptacle and tumbler switch.
Standard package, 50; weight, 12 pounds.

No. 7969



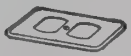
For round flush plug receptacles.
Standard package, 50; weight, 12 pounds.

No. 7970



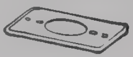
For round flush plug receptacles (with lift cover).
Standard package, 50; weight, 15 pounds.
*With gasket.

No. 7976



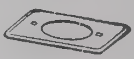
For standard duplex receptacles.
Standard package, 50; weight, 11 pounds.

No. 7978



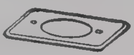
For conduit box receptacles. Hole, $1\frac{3}{8}$ inches; and screw holes, $1\frac{13}{16}$ inches center to center.
Standard package, 50; weight, 12 pounds.

No. 7980



For conduit box receptacles. Hole, $1\frac{5}{8}$ inches.
Standard package, 50; weight, 12 pounds.

No. 7983

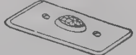


For G-E plug receptacles GE-996 or Hubbell 7410.
Standard package, 50; weight, 12 pounds.

No. 7986

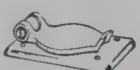
Blank metal.
Standard package, 50; weight, 13 pounds.

No. 7987



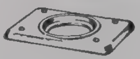
For pilot lamp flush receptacles (with ruby jewel).
Standard package, 50; weight, 14 pounds.

***No. 7988, Cast**



For round flush receptacles (with spring door).
Standard package, 50; weight, 44 pounds.

No. 7989, Cast



For round flush plug receptacles.
Standard package, 50; weight, 26 pounds.

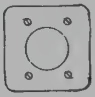
Covers

Bulletin 1000

For FS and FD Series 2-Gang Unilet Bodies

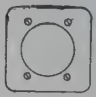
Cadmium

No. 14097



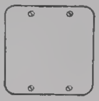
For Hubbell 2-wire, 30-ampere polarized flush receptacle No. 7070.
Standard package, 25.
Weight, package, 10 lb.

No. 14098



For Hubbell 3-wire, 30-ampere polarized flush receptacle No. 7112.
Standard package, 25.
Weight, package, 10 lb.

No. 14089



Blank metal.
Standard package, 25.
Weight, package, 11 lb.

Unilet 2-Gang Vaportight Covers

Form 152

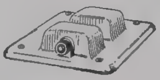
For FS and FD Series Unilet Bodies

Cadmium Finish

No. 8160

For double push-button switches.
Standard package, 15.
Weight, package, 22 lb.

No. 8161

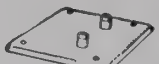


For momentary contact switches.
Standard package, 15.
Weight, package, 21 lb.

***No. 8162**

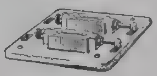
For key operation, with standard double push button switches (with key).
Standard package, 15.
Weight, package, 20 lb.

No. 8163



With stuffing box for Arrow push and pull switches with operating handles, Nos. 6010 to 6013 and 6043 to 6052.
Standard package, 15.
Weight, package, 14 lb.

No. 8164

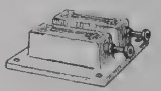


For square handle tumbler and toggle flush switches.
Standard package, 15.
Weight, package, 26 lb.

No. 8164-B

For square handle tumbler and toggle flush switches (with guards).
Standard package, 15.
Weight, pkg., $33\frac{1}{2}$ lb.

†No. 8164-A



For switches and starters as follows:
Arrow H. & H. No. 100006, 2-pole, 30-ampere, 250-volt.
Arrow H. & H. No. 80162, 2-pole, 5-ampere, 600-volt.
Arrow Type C switches, 20-ampere, 250-volt, Nos. 6301, 6302, 6303, 6304, 6306.
Arrow Type C switches, 30-ampere, 250-volt, Nos. 6464, 6465, 6466, 6467, 6469.
Bryant Type T, 20-ampere, 250-volt, Nos. 5421, 5422, 5423, 5424; Bryant Type T, 30-ampere, 250-volt, Nos. 5431, 5432, 5433, 5434, 5436.
Trumbull manual starters, Nos. 2227-S, 2228-S, 2328-S; Trumbull TT manual starters, Nos. 1100-S to 1112-A and 1200-S to 1212-S.
Standard package, 15.
Weight, package, 31 lb.

No. 8165

Blank metal.
Standard package, 15.
Weight, package, 13 lb.

*Key for No. 8162 cover lists at 20 cents each.
†For use on FD series, 2-gang unilets only.

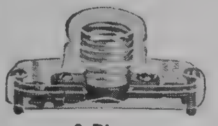
Receptacles

Bulletin No. 1000

For Form 35 Threaded and No-Thread Unilet Bodies

Furnished with Fastening Screws

Lamp Receptacles



2-Piece

660 Watts
600 Volts

If specified, furnished with lamp grip at extra cost.

1-Piece

2-Piece—Porcelain Top—Composition Base

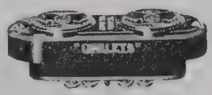
No. *With Shade Holder Groove	Size Inches	Std. Pkg.	Wt. Lb. Std. Pkg.
35100	½	100	52
35101	¾	100	60
35102	1	50	40
1-Piece Porcelain			
35110	½	100	60
35111	¾	100	65
35112	1	50	40

†2-Pole Attachment Plug Receptacles

15 Amperes, 125 Volts or 10 Amperes, 250 Volts

Single

Composition; with double T slots.



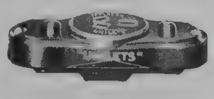
Duplex

Size Inches	Single No.	Single Std. Pkg.	Single Wt., Lb. Std. Pkg.	Duplex No.	Duplex Std. Pkg.	Duplex Wt., Lb. Std. Pkg.
½	35120	100	45	35125	100	35
¾	35121	100	50	35126	100	38
1	35122	50	35	35127	50	30

‡2-Pole Polarity Plug Receptacles

Composition.

	15 Amp., 125 Volt —10 Amp., 250-Volt—			—20 Amp., 250 Volt—		
½	35130	100	48	35135	100	50
¾	35131	100	52	35136	100	53
1	35132	50	35	35137	50	40

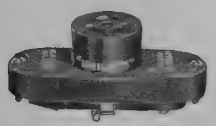


§3-Pole Polarity Plug Receptacles

15 Amp., 125 Volts or 10 Amp., 125 Volts

Composition.

	—Receptacles—			Receptacles —Grounded—		
¾	35151	100	55	35156	100	57
1	35152	50	38	35157	50	40



¶3-Wire Twist Lock Receptacles—Polarized

15 Amp., 125 Volts or 10 Amp., 125 Volts

Bakelite top, composition base.

	—Not Grounded—			—Grounded—		
½	35170	100	55	35175	100	55

Cord Rosettes

660 Watts, 250 Volts

Composition; with cord grip.

No.	Size Inch	Std. Pkg.	Wt., Lb. Std. Pkg.
35140	½	100	52
35141	¾	100	57
35142	1	50	58

*Shade holder groove is 1½ inches in diameter.
†Attachment plugs are extra.
‡Takes Hubbell No. 5567 polarized plug.
§Takes Hubbell Plug Cap Nos. 7055 and 9750.
¶Takes Hubbell plug caps Nos. 7567, 7568, 7554, 7558, 7572, 7573; if desired grounded, suffix letter G to Hubbell No.

Rectangular Receptacles

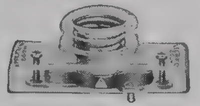
Bulletin 1000

For Unilet Bodies with Rectangular Openings

Furnished with fastening screws.

2-Piece Lamp Receptacles

Porcelain top, composition base; with shade holder groove. Lamp grip can be furnished.



No.	Size Inches	Std. Pkg.	Wt., Lb. Std. Pkg.
7660	½	100	47
7661	¾	100	56

No. 7640—1-Piece Lamp Receptacles

Made of porcelain.
With shade holder groove.
Size, ½ inch.
Standard package, 100; weight per package, 51 pounds.

2-Pole Single Plug Receptacles

15 Amp., 125 Volts; or 10 Amp., 250 Volts

Composition; single plug with double T slots.

No.	Size Inches	Std. Pkg.	Wt., Lb. Std. Pkg.
7665	½	100	14
7666	¾	100	15

2-Pole Duplex Plug Receptacles

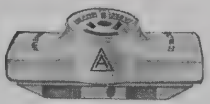
15 Amp., 125 Volts; or 10 Amp., 250 Volts

Composition; duplex plug with double T slots.

No.	Size Inches	Std. Pkg.	Wt., Lb. Std. Pkg.
7685	½	100	14
7686	¾	50	10

2-Wire, 3-Pole Plug Receptacles

15 Amp., 125 Volts; or 10 Amp., 250 Volts



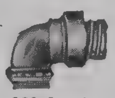
Porcelain; extra pole grounded.

No.	Size Inches	Std. Pkg.	Wt., Lb. Std. Pkg.
7675	½	100	48
7676	¾	100	53
7577	1	50	34

Simplet Oil and Vapor Tight Fittings

For Use with Sealtite Plastic Covered Flexible Metallic Conduit

Straight



90° Angle

45° Angle

Furnished complete with threaded grounding bushing.

Straight

No.	Per 100	Size In.	Std. Pkg.	Ctn. Qty.	Wt. Lb. Std. Pkg.	No.	Per 100	Size In.	Std. Pkg.	Ctn. Qty.	Wt. Lb. Std. Pkg.
5204	$34.10	⅜	100	25	12	5244	$120.00	1¼	25	5	18
5214	34.10	½	100	25	16	5254	164.00	1½	10	2	11
5224	49.50	¾	50	25	13	5264	312.00	2	5	1	10
5234	72.60	1	25	5	11	....	......	...	..	.	..

90° Angle

No.	Per 100	Size In.	Std. Pkg.	Ctn. Qty.	Wt. Lb. Std. Pkg.	No.	Per 100	Size In.	Std. Pkg.	Ctn. Qty.	Wt. Lb. Std. Pkg.
5304	$57.60	⅜	50	25	9	5344	$243.00	1¼	25	5	23
5314	57.60	½	50	25	11	5354	292.00	1½	10	2	15
5324	81.40	¾	50	25	17	5364	437.00	2	5	1	14
5334	159.00	1	25	5	15	....	......	...	..	.	..

45° Angle

No.	Per 100	Size In.	Std. Pkg.	Ctn. Qty.	Wt. Lb. Std. Pkg.	No.	Per 100	Size In.	Std. Pkg.	Ctn. Qty.	Wt. Lb. Std. Pkg.
5404	$57.60	⅜	50	25	9	5444	$243.00	1¼	25	5	23
5414	57.60	½	50	25	11	5454	292.00	1½	10	2	15
5424	81.40	¾	50	25	17	5464	437.00	2	5	1	14
5434	159.00	1	25	5	15	....	......	...	..	.	..

Series V-51 Convertible Vaportight Lighting Fixtures

Bulletin No. 1000

For Use with Rigid Conduit (Heavy Wall)

Listed by Underwriters' Laboratories

Vaportight design lighting fixtures; unit construction for simplified re-lamping; *instantly convertible for 100 or 150–200 watt lamp units.

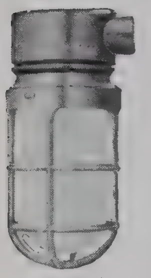
Strong malleable iron Unilets have ½ or ¾-inch hubs in pendant or ceiling types; bracket type available. Unilets are furnished with a connecting block having terminals for line wires and spring leaf contacts to center pin and collector ring assembly in globe adapter; conversion is simple because Unilets take either 100 or 150–200 watt adapters.

Globe adapters in 100 or 150–200 watt sizes, complete with vaportight seal with globe. Has collector ring assembly to make wireless contact with Unilet, and is designed to take Navy standard vaportight globes in clear glass, colored or heat-resisting types. Has two cavities to receive snap-type guard.

Guard is of sturdy die-cast aluminum construction, with two sealed ball plunger units which snap into cavities in the adapter with a twist, no clamps or set-screws are required. Made to be used as a tool when turned counter-clockwise, removing complete adapter-globe-guard assembly in one operation, as in re-lamping.

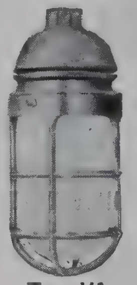
*Special Note: 300 Watt medium base lamps may be used with 200 Watt units.

Types V, VA and VC



Type V
1 Hub

Watts	Hub Size In.	Type V 1 Hub No.	Wt. Lb.	Type VA Pendant No.	Wt. Lb.	Type VC 2 Hubs No.	Wt. Lb.
		With Globe and Guard					
100	½	V1050G	4¼	VA1050G	3⅞	VC1050G	4 7/16
	¾	V1075G	4¼	VA1075G	3⅞	VC1075G	4 7/16
		Without Globe and Guard					
	½	V1050	2⅞	VA1050	2½	VC1050	3 1/16
	¾	V1075	2⅞	VA1075	2½	VC1075	3 1/16
		With Globe and Guard					
150–200 or 300*	½	V2050G	6⅜	VA2050G	6	VC2050G	6 9/16
	¾	V2075G	6⅜	VA2075G	6	VC2075G	6 9/16
		Without Globe and Guard					
	½	V2050	3⅜	VA2050	3	VC2050	3 9/16
	¾	V2075	3⅜	VA2075	3	VC2075	3 9/16



Type VA
Pendant

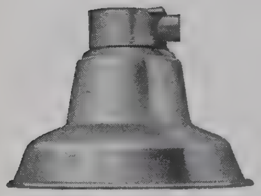
Type VC
2 Hubs

Fixtures with Reflectors

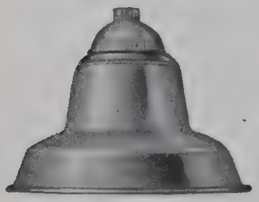
Steel reflector with green porcelain enamel exterior, white interior; standard dome (shown), shallow dome, deep bowl or angle types are available.

Has attachment feature consisting of a neoprene rubber ring which snaps securely into groove in Unilet with slight twisting pressure; cushions against vibration.

Quick removal or replacement of reflectors; no clamps or set-screws, no tools required.



Type V, 1 Hub



Type VA, Pendant

Type VC, 2 Hub

Watts	Type of Reflector	Hub Size In.	Type V 1 Hub No.	Wt. Lb.	Type VA Pendant No.	Wt. Lb.	Type VC 2 Hubs No.	Wt. Lb.
100	Standard Dome	½	V1050ST	5⅞	VA1050ST	5½	VC1050ST	5 15/16
		¾	V1075ST	5⅞	VA1075ST	5½	VC1075ST	5 15/16
	Shallow Dome	½	V1050SH	5⅞	VA1050SH	5½	VC1050SH	5 15/16
		¾	V1075SH	5⅞	VA1075SH	5½	VC1075SH	5 15/16
	Deep Bowl	½	V1050DB	5⅞	VA1050DB	5½	VC1050DB	5 15/16
		¾	V1075DB	5⅞	VA1075DB	5½	VC1075DB	5 15/16
	30° Angle	½	V1050AN	5⅞	VA1050AN	5½	VC1050AN	5 15/16
		¾	V1075AN	5⅞	VA1075AN	5½	VC1075AN	5 15/16
150	Standard Dome	½	V1550ST	7⅝	VA1550ST	7¼	VC1550ST	7 13/16
		¾	V1575ST	7⅝	VA1575ST	7¼	VC1575ST	7 13/16
	Shallow Dome	½	V1550SH	7⅝	VA1550SH	7¼	VC1550SH	7 13/16
		¾	V1575SH	7⅝	VA1575SH	7¼	VC1575SH	7 13/16
	Deep Bowl	½	V1550DB	7⅝	VA1550DB	7¼	VC1550DB	7 13/16
		¾	V1575DB	7⅝	VA1575DB	7¼	VC1575DB	7 13/16
	30° Angle	½	V1550AN	7⅝	VA1550AN	7¼	VC1550AN	7 13/16
		¾	V1575AN	7⅝	VA1575AN	7¼	VC1575AN	7 13/16
200 or 300*	Standard Dome	½	V2050ST	7⅞	VA2050ST	7½	VC2050ST	8 1/16
		¾	V2075ST	7⅞	VA2075ST	7½	VC2075ST	8 1/16
	Shallow Dome	½	V2050SH	7⅞	VA2050SH	7½	VC2050SH	8 1/16
		¾	V2075SH	7⅞	VA2075SH	7½	VC2075SH	8 1/16
	Deep Bowl	½	V2050DB	7⅞	VA2050DB	7½	VC2050DB	8 1/16
		¾	V2075DB	7⅞	VA2075DB	7½	VC2075DB	8 1/16
	30° Angle	½	V2050AN	7⅞	VA2050AN	7½	VC2050AN	8 1/16
		¾	V2075AN	7⅞	VA2075AN	7½	VC2075AN	8 1/16

Series V-51 Convertible Vaportight Fixtures

Bulletin 1000

Vaportight design lighting fixtures; unit construction for simplified re-lamping; instantly convertible for 100 or 120-200 watt lamp units.

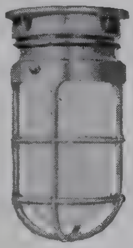
Mounting units are malleable iron, cadmium finish. Globe adapters in 100, 150-200 or 300 watt sizes, complete with vaportight seal with globe. Has collector ring assembly to make wireless contact with Unilet, and is designed to take Navy standard vaportight globes in clear glass, colored or heat-resisting types. Has two cavities in which guard snaps.

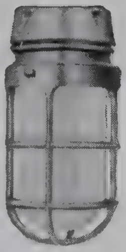
Guard of strong die-cast aluminum with two sealed ball plungers units which snap into cavities in adapter with a twist; no clamps or set screws. Made to be used as a tool when turned counterclockwise, removing complete adapter-globe-guard assembly in one operation.

Types JB and JBW fixtures are designed to mount on JB and JBD Unilet bodies.

Types GS and GSW fixtures are designed to mount on GS Unilet bodies.

Types OBV and OBVW fixtures are designed to mount on standard 3¼-inch and 4-inch octagonal outlet boxes.


Type JB

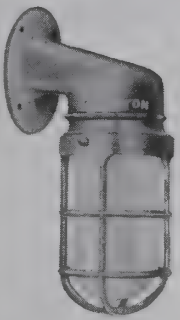

Type GS

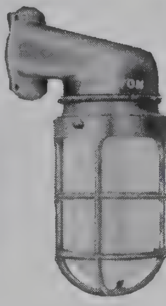
Type OBV

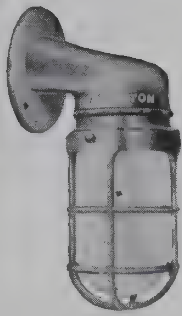
Types JB, GS and OBV

With Globe and Guard

Watts	Type JB No.	Type JB Wt. Lb.	Type GS Form 5-10 No.	Type GS Form 5-10 Wt. Lb.	Type GS Form 20 No.	Type GS Form 20 Wt. Lb.	Type OBV No.	Type OBV Wt. Lb.
100	JB10G	3⅞	GS10G	3 11/16	GS102G	3⅞	OBV10G	4⅛
	Without Globe and Guard							
	JB10	2½	GS10	2 5/16	GS102	2½	OBV10	2¾
	With Globe and Guard							
150–200 or *300	JB20G	6	GS20G	5 13/16	GS202G	6	OBV20G	6¼
	Without Globe and Guard							
	JB20	3	GS20	2 13/16	GS202	3	OBV20	3¼


Type JBW


Type GSW


Type OBVW

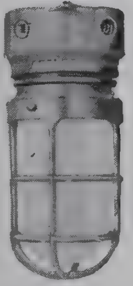
Types JBW, GSW and OBVW

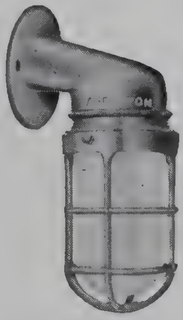
With Globe and Guard

Watts	Type JBW No.	Type JBW Wt. Lb.	Type GSW Form 5-10 No.	Type GSW Form 5-10 Wt. Lb.	Type GSW Form 20 No.	Type GSW Form 20 Wt. Lb.	Type OBVW No.	Type OBVW Wt. Lb.
100	JBW10G	6	GSW10G	5⅝	GSW102G	6	OBVW10G	6
	Without Globe and Guard							
	JBW10	4⅝	GSW10	4¼	GSW102	4⅝	OBVW10	4⅝
	With Globe and Guard							
150–200 or *300	JBW20G	8⅛	GSW20G	7¾	GSW202G	8⅛	OBVW20G	8⅛
	Without Globe and Guard							
	JBW20	5⅛	GSW20	4¾	GSW202	5⅛	OBVW20	5⅛

Types VXHA and VGA

For Use with Rigid Conduit (Heavy Wall)


Type VXHA, with 5 Tapped Hubs, and 4 Close Up Plugs


Type VGA, with 1 Tapped Hub in Center of Mounting Plate

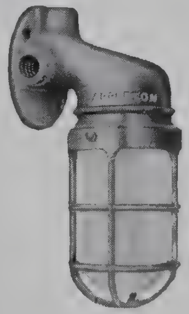
With Globe and Guard

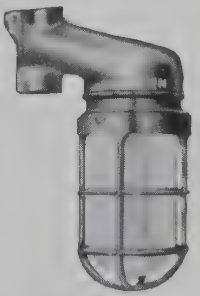
Watts	Hub Size In.	Type VXHA No.	Type VXHA Wt. Lb.	Type VGA No.	Type VGA Wt. Lb.
100	½	VXHA1050G	5⅝	VGA1050G	6
	¾	VXHA1075G	5⅝	VGA1075G	6
		Without Globe and Guard			
	½	VXHA1050	4¼	VGA1050	4⅝
	¾	VXHA1075	4¼	VGA1075	4⅝
		With Globe and Guard			
150–200 or *300	½	VXHA2050G	7¾	VGA2050G	8⅛
	¾	VXHA2075G	7¾	VGA2075G	8⅛
		Without Globe and Guard			
	½	VXHA2050	4¾	VGA2050	5⅛
	¾	VXHA2075	4¾	VGA2075	5⅛

*300 watt No. PS-30 medium base.

Types VGAT and VD

For Use with Rigid Conduit (Heavy Wall)

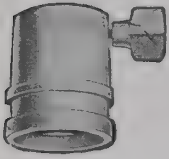

Type VGAT with 4 Tapped Hubs; One in Center of Mounting Plate, One at Top, One at Each Side; and 3 Close Up Plugs

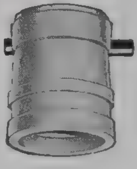

Type VD, with 2 Tapped Hubs; One at Top; One at Bottom; One Close-Up Plug

With Globe and Guard

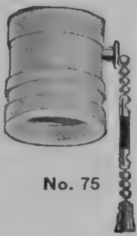
Watts	Hub Size In.	Type VGAT No.	Type VGAT Wt. Lb.	Type VD No.	Type VD Wt. Lb.
100	½	VGAT1050G	6	VD1050G	5⅝
	¾	VGAT1075G	6	VD1075G	5⅝
		Without Globe and Guard			
	½	VGAT1050	4⅝	VD1050	4¼
	¾	VGAT1075	4⅝	VD1075	4¼
		With Globe and Guard			
150–200 or *300	½	VGAT2050G	8⅛	VD2050G	7¾
	¾	VGAT2075G	8⅛	VD2075G	7¾
		Without Globe and Guard			
	½	VGAT2050	5⅛	VD2050	4¼
	¾	VGAT2075	5⅛	VD2075	4¼

Bryant Porcelain Socket Bodies


No. 70


No. 71

No. 73


No. 75

No. 70 Single Pole-Key
250 Watts, 250 Volts

No.	Per 100	Carton	Std. Pkg.	Wt.Lb. Std.Pkg.
70	$62.00	10	100	26

No. 71 Push-Button
660 Watts, 250 Volts

71	$116.00	10	100	31

No. 73 Keyless
660 Watts, 250 Volts

73	$44.50	10	100	16

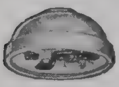
No. 75 Single-Pole Pull
250 Watts, 250 Volts

No.	Per 100	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
75	$111.50	10	100	32

Bryant Porcelain Caps

No. PA

No. PQ


No. PT

No. PA ⅛-Inch Female

No.	Per 100	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
PA	$59.00	10	100	13

No. PC ⅜-Inch Female

PC	$64.00	10	100	14

No. PD ½-Inch Female Brass

PD	$82.00	10	100	16

No. PQ Cord Grip

For from ⅜ to ½-inch cord.

PQ	$70.00	10	100	17

No. PT Pendant

With 13/32-inch cord hole.

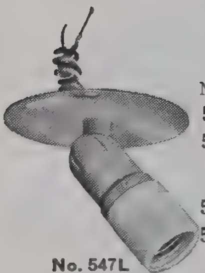
PT	$32.00	10	100	10

Swivelier Adjustable Sockets on Plates

For Outlet Box Attachment

Listed by Underwriters' Laboratories

Single Socket on 3¼-Inch or 4-Inch Flat Box Plates


No. 547L

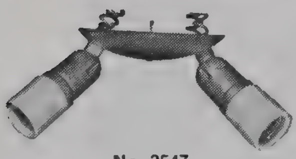
Without Leads

No.	Each	Mechanism	Outlet Box In.
537	$2.05	Porcelain	3¼
547	2.10	Porcelain	4

With Leads

537L	$2.25	Porcelain	3¼
547L	2.35	Porcelain	4

Socket Cluster Units


No. 2547

For attachment to 3¼ or 4-inch outlet boxes. Multiple adjustable sockets, mounted on one dome plate, 4¾-inch outside diameter.

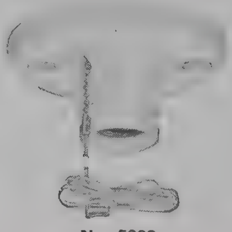
Plate attaches to outlet box by machine screw in center of plate, threads into strap which is supplied. Socket wired with 8 inches AF leads.

Individually packed 10 to a standard carton.

No.	Each	No. Sockets	Wt. Lb. Std. Pkg.
2547	$4.45	2	15
3547	6.70	3	19
4547	8.90	4	24

Bryant Porcelain Medium Base Lampholders

250 Watts, 250 Volts
Listed by Underwriters' Laboratories


No. 5288

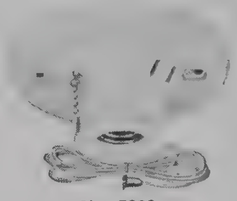
Removable Interior Type

For 3¼ and 4-Inch Switch Boxes
Diameter, 4⅝ Inches

With shadeholder groove.

Packed 5 in a carton, 50 in standard package.

No.	Per 100	Description	Wt., Lb. Std. Pkg.
5287	$73.50	Chain & Insulator	44
5288	67.00	Chain & Cord....	44


No. 5289

With Convenience Outlet

Outlet—15 Amperes, 125 Volts
For 3¼ and 4-Inch Boxes

With shadeholder groove.

Packed 5 in a carton, 50 in standard package.

No.	Per 100	Description	Wt., Lb. Std. Pkg.
5290	$106.50	Chain & Insulator	45
5289	98.50	Chain & Cord.....	45

Bryant Porcelain Medium Base Lampholders

660 Watts, 250 Volts
Listed by Underwriters' Laboratories

No. 227

No. 173

With shadeholder groove and screw terminals.

No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
227	$61.00	For 3¼-Inch Box..........	5	100	58
5228	37.50	For 3¼ and 4-Inch Boxes..	5	50	40
173	56.50	Mounted on 3¼-Inch Perma Cadmium-Plated Cover...	10	100	50
174	64.00	Mounted on 4-Inch Perma Cadmium-Plated Cover...	5	100	60

No. 311 Bryant Weatherproof Lampholders

Soft Rubber—Black

Insulation on leads is all rubber.

Equipped with 4½-inch leads of No. 14 stranded wire.

No.	Per 100	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
311	$46.50	10	100	18

Bryant Composition Weatherproof Lampholders

660 Watts, 600 Volts

No. 43310

No. 60666, Black Composition

With Shade-Holder Groove

Equipped with 4½ inches of No. 14 stranded wire. Packed 10 to carton, 100 to package weighing 25 pounds.

No. **60666**......................per 100 **$53.00**

No. 43310, Brown Bakelite

With Shade-Holder Groove

Has 4½ inches of No. 14 stranded wire. Packed 10 to carton, 100 to standard package, weighing 21 pounds.

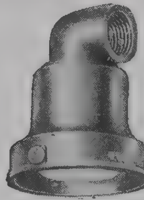
No. **43310**......................per 100 **$38.50**

Bryant Weatherproof Lampholders

Aluminum—Die Cast Hood Type

Listed by Underwriters' Laboratories
660 Watts, 250 Volts

No. 3996



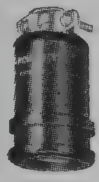
No. 3997

No. 3998

No.	Per 100	Description	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
3996	$131.00	For 2¼-Inch Shade with ½-Inch Hexagonal Nipple	10	100	55
3997	123.00	For 2¼-Inch Shade with ½-Inch 90° Angle Nipple	10	100	58
3998	119.00	With ½-In. Hexagonal Nipple	10	100	50

Protex Neotex Covered Sockets

660 Watts, 250 Volts



No.700

No. 710

Outer covering is made of high quality Neotex (a neoprene compound) to protect the interior from breakage and also make the socket shockproof and safe.

When lamp is in push type socket, bar cannot be removed, as spring contact locks bar in.

Keyless socket interior can be removed by pulling or pushing it out of rubber cover.

Seal-Tite socket allows rubber to contact light bulb and make it moisture-proof.

Packed 10 in a carton, 100 in a standard package.

Push Type

No.	Each	Description	Wt., Lb. Std. Pkg.
700	$1.60	Pendant with 7/16-Inch Cord Hole	27
701	1.80	⅛-Inch Cap	29
702	1.80	¼-Inch Cap	29
703	1.90	⅜-Inch Cap	31
704	1.90	½-Inch Cap	32
705	2.20	Pendant with ⅛ to ½-Inch Cord Grip	38

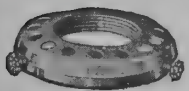
Keyless Type

No.	Each	Description	Wt., Lb. Std. Pkg.
710	$.80	Pendant with 7/16-Inch Cord Hole	22
711	1.00	⅛-Inch Cap	23
712	1.00	¼-Inch Cap	23
713	1.20	⅜-Inch Cap	25
714	1.20	½-Inch Cap	26
717	1.15	Pendant with ⅛ to ½-Inch Cord Grip	33

No. 501 Hubbell Shade Holders

Direct Threading 3-Screw Type

For Brass Shell Sockets



Standard finish is brush brass.

Can be furnished less screws, untapped. Size, 2¼ inches.

Packed 50 in a carton; 500 in a standard package.

Weight per package, 27 pounds.

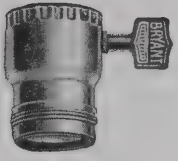
No. 501 .... per 100 $40.00

MATERIAL NOT LISTED

We can furnish many items
not listed in this catalog.
Please send us all your inquiries.

Bryant Brass Socket Bodies

Listed by Underwriters' Laboratories



No. 10

No. 13

No. 15

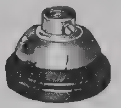
No. 34

No.	Per 100	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
	No. 10 With Key Single-Pole 250 Watts, 250 Volts			
10	$55.00	25	250	33
	No. 13 Keyless 660 Watts, 250 Volts			
13	$45.00	25	250	26
	No. 15 with Pull Chain Single Pole 250 Watts, 250 Volts			
15	$73.00	25	250	32
	No. 34 With Push-Button Single Pole 660 Watts, 250 Volts			
34	$54.00	25	250	31

Bryant Interchangeable Cold Molded Black Composition Socket Caps and Bodies

Made of black composition, suitable for installation where metal shell sockets may not prove satisfactory. Each cap will fit either body.

Socket Caps



FA

FQ

FT

Cat. No.	Per 100	Description	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
FA	$56.00	⅛-Inch Metal Bushing	10	100	13
FC	63.00	⅜-Inch Metal Bushing	10	100	15
FQ	72.00	Cord Grip ⅜ to ½-Inch	10	100	16
FT	33.00	Pendent Cap	10	100	10

Socket Bodies

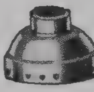
With Groove for Weatherproof Shade-Holders

No. 3770

No. 3773

Cat. No.	Per 100	Description	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
3770	$68.50	Key, 250 Watts, 250 Volts	10	100	23
3773	48.00	Keyless, 660 Watts, 250 Volts	10	100	14

Bryant Fluted Catch Brass Socket Caps



No. HA

No. HQ

No. HT

No.	Per 100	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
	No. HA ⅛-Inch Female			
HA	$16.00	25	250	12
	No. HB ¼-Inch Female			
HB	$41.00	5	25	1
	No. HC ⅜-Inch Female			
HC	$25.00	25	100	5
	No. HD ½-Inch Female			
HD	$43.50	25	50	4
	No. HM ⅜-Inch Female Angle			
HM	$54.00	25	50	3
	No. HP ⅜-Inch Female Angle			
HP	$61.00	5	25	1
	No. HQ Cord Grip For ⅜ to ½-inch cords.			
HQ	$41.00	25	100	7
	No. HT Pendent Cap With composition bushing; 13/32-inch hole.			
HT	$15.00	25	250	7
	No. HU Strain Relief Pendent Cap With porcelain bushing; 13/32-inch hole.			
HU	$23.50	25	100	3

Hubbellock Devices

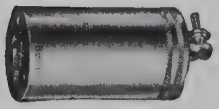
For High-Cycle Portable Equipment

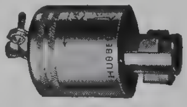
These rugged devices break the circuit and seal it in a split second; the safest and most practical means of applying electrical current to industrial use.

The rugged contacts of the cap are machined from heavy brass stock and molded into special, impact-resisting bakelite supporting posts which absolutely prevents shifting out of alignment or bending or twisting, no matter how rough the usage. Positive polarity and ground connection is thus assured at all times under all conditions. The lock is positive with nothing to jam out-of-order and therefore allows no accidental breaking of current with consequent loss of production.

3-Wire Connectors

With Adjustable Cord Grip
10 Amperes, 250 Volts D.C.; 460 Volts A.C.
20 Amperes, 125 Volts A.C. or D.C.


No. 23002


No. 23005

Steel cover plated to resist corrosion.

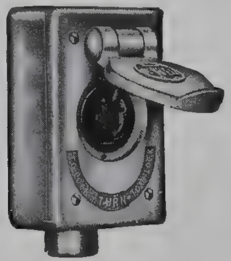
If desired with ground shunt from contact to cover or casing, suffix letter G to number.

No.	Per 100	Description	Cable Diameter Inches	Carton	Std. Pkg.	Pkg. Wt. Lb.
23002	$484.00	Connector Body...	.296 to .562	5	20	9
23005	342.50	Cap..............	.296 to .562	5	20	8
23003	484.00	Connector Body...	.406 to .625	5	20	9
23006	342.50	Cap..............	.406 to .625	5	20	8
23009	505.00	Connector Body with ½″ Female Pipe Thread.....	....	5	20	9
23016	395.00	Cap, ½″ Female Pipe Thread.....	....	5	20	8

3-Wire Receptacles and Plates

10 Amperes, 250 Volts D.C.; 460 Volts A.C.
20 Amperes, 125 Volts A.C. or D.C.

No. 23000


Nos. 23000 and 23007 Assembled to Outlet Box

Receptacle and plate will fit FS and FD outlet boxes. Fits any single convenience outlet plate. Receptacle will also fit standard switch and outlet boxes.

Outlet box not supplied.

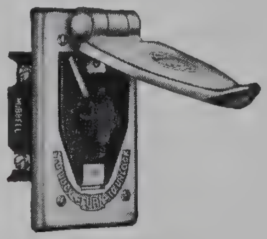
Steel cover plated to resist corrosion.

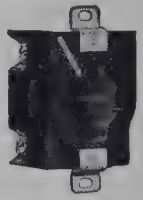
If desired grounded, suffix letter G to number.

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
23000	$381.00	Bakelite Receptacle............	5	20	8
23007	183.00	Cast Iron Plate with Lift Cover	5	20	13
23008	125.00	Cast Iron Plate without Lift Cover.......................	5	20	10
23015	502.00	Male Receptacle Permanently Attached to Cast Metal Lift Cover Plate..................	5	20	20

4-Wire Receptacles and Plates

20 Amperes, 250 Volts D.C.
30 Amperes, 600 Volts A.C.


No. 20403 Receptacle with No. 20416 Plate


No. 20403

Receptacle and plates will fit FS and FD outlet boxes.

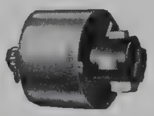
Steel cover plated to resist corrosion.

Furnished grounded unless otherwise specified.

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
20403	$588.00	Bakelite Receptacle.............	2	10	5
20416	183.00	Iron Plate, with Cover..........	2	10	9
20417	125.00	Iron Plate, without Cover.......	2	10	4

4-Wire Connectors and Caps

With Metal Adjustable Cord Grip
20 Amperes, 250 Volts D.C.
30 Amperes, 600 Volts A.C.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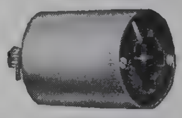
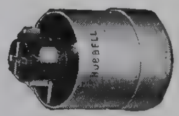

No. 20414

Steel cover plated to resist corrosion.

No.	Per 100	Description	Cable Diameter Inches	Carton	Std. Pkg.	Pkg. Wt. Lb.
20414	$672.00	Connector Body..	.400 to .750	2	10	10
20415	449.00	Cap.............	.400 to .750	2	10	7

With Rubber Cord Grip


No. 21415

No. 21414

Steel cover plated to resist corrosion.

No.	Per 100	Description	Cable Diameter Inches	Carton	Std. Pkg.	Pkg. Wt. Lb.
21414	$671.00	Connector Body..	.360 to .484	2	10	10
21415	494.00	Cap.............	.360 to .484	2	10	7

Hubbell 10-Ampere Twist-Lock Devices

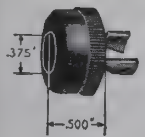
10 Amperes, 250 Volts; 15 Amperes, 125 Volts

National Electric Code rules advise installation of polarized and grounded devices to protect the users of portable motor-driven tools and equipment.

Positive protection against both electrical hazard and disconnection delays is provided by Twist-Lock Polorized Devices. Twist-Lock Devices never part in the middle of a job, no matter how hard the cord is yanked. A lock-fast connection is made by a twist of the cap.

All 3 and 4-wire Twist-Lock Devices are polarized by blades designed to engage correspondingly shaped slots in receptacles or connector bodies. Grounding blade is longer than others so as to make contact first and break last.

2-Wire Midget Cord Connectors



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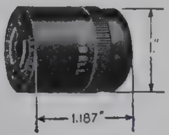

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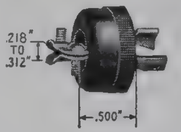
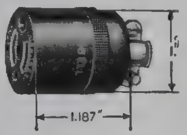


No. 7465



No. 7464

Without Cord Grip—.375-Inch Cord Hole

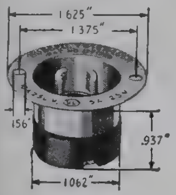
No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7462	**$27.50**	Cap Only	10	50	1¼
7477	**33.00**	Cap Only, Polarized	10	50	1¼
***7461**	**55.00**	Connector Body Only	10	50	2½

With Cord Grip—Clamp Spread .218-Inch to .312-Inch

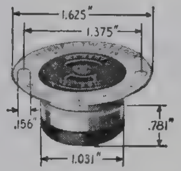
Standard finish for cord grips is statuary bronze.

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7465	**$37.00**	Cap Only	10	50	2
7479	**43.00**	Cap Only, Polarized	10	50	1½
***7464**	**66.50**	Connector Body Only	10	50	3

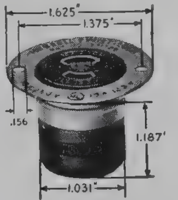
2-Wire Midget Flush Motor Bases



No. 7466



No. 7468

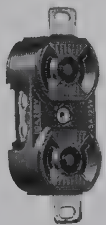


No. 7471

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7466	**$79.50**	Male Base	10	50	4
7467	**96.00**	Male Base, Polarized	10	50	7
***7468**	**96.00**	Female Base	10	50	4
***7473**	**120.00**	No. 7468 Receptacle on 3¼-Inch Steel Box Cover	10	50	16
***7471**	**101.50**	Female Base, Covered Terminals without Cord Grips	10	50	5
***7472**	**111.50**	Female Base, Covered Terminals with Cord Grips	10	50	4

2-Wire Receptacles

No. 7535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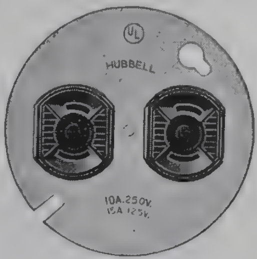


No. 7543

Covers finished to resist corrosion.

Single

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
***7535**	**$84.00**	Bakelite Receptacle	10	50	9
***7536**	**99.00**	Bakelite Receptacle with 3¼" Cover	10	30	8
***7537**	**104.50**	Bake. Receptacle with 4" Cover	5	30	14

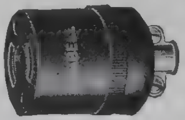
Duplex

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
***7540**	**137.00**	Bakelite Receptacle	10	50	13
***7543**	**144.00**	Bakelite Receptacle with 3¼" Cover	10	50	22
***7544**	**157.00**	Bake. Receptacle with 4" Cover	5	30	15

*Will accommodate both polarized and non-polarized caps.

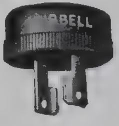
2-Wire Bakelite Connector Bodies

No. 7503

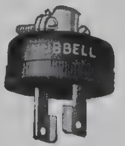

No. 7506

No.	Per 100	Description	Cord Diameter Inches	Carton	Std. Pkg.	Pkg. Wt. Lb.
7503	**$76.00**	Connector Body	.375	10	50	6
7506	**90.50**	Cord Grip Body	.296 to .562	10	50	7
7696	**90.50**	Cord Grip Body	.218 to .312	10	50	6
7688	**112.50**	Armored Cord Grip Body	.295 to .562	10	50	9
7689	**112.50**	Armored Cord Grip Body	.406 to .625	10	50	9

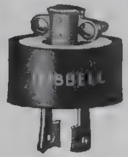
2-Wire Plug Caps



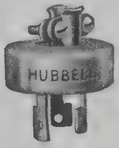
No. 7504



No. 7507



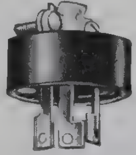
No. 7545



No. 7542

No.	Per 100	Description	Cord Diameter Inches	Carton	Std. Pkg.	Pkg. Wt. Lb.
7504	**$50.50**	Bakelite	.375	10	50	3
7507	**58.00**	Bakelite, Cord Grip	.296 to .562	10	50	4
†7505	**50.50**	Bakelite	.375	10	50	6
†7508	**66.50**	Bakelite, Cord Grip	.296 to .562	10	50	4
7697	**58.00**	Bakelite Cap	.218 to .312	10	50	4
†7698	**66.50**	Bakelite Cap	.296 to .562	10	50	6
7545	**81.50**	Rubber	.296 to .562	10	50	7
7546	**81.50**	Rubber	.406 to .625	10	50	7
†7547	**99.00**	Rubber	.296 to .562	10	50	7
†7548	**99.00**	Rubber	.406 to .625	10	50	8
7542	**67.50**	Armored	.296 to .562	10	50	7
7549	**67.50**	Armored	.406 to .625	10	50	6
†7588	**78.50**	Armored	.296 to .562	10	50	6
†7589	**78.50**	Armored	.406 to .625	10	50	6
7642	**99.00**	Armored with Angle Cd.	.500 to .625	10	50	8

3-Wire Polarized Caps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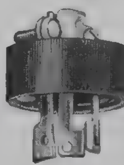
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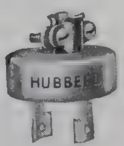


No. 7572

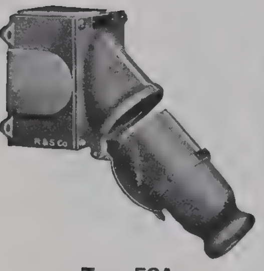
No.	Per 100	Description	Cord Diameter Inches	Carton	Std. Pkg.	Pkg. Wt. Lb.
7567	**$124.50**	Rubber	.296 to .562	10	50	8
7568	**124.50**	Rubber	.406 to .625	10	50	8
7554	**95.00**	Bakelite	.296 to .562	10	50	6
7558	**95.00**	Bakelite	.406 to .625	10	50	7
7572	**103.00**	Metal Covered Comp.	.296 to .562	10	50	7
7573	**103.00**	Metal Covered Comp.	.406 to .625	10	50	8

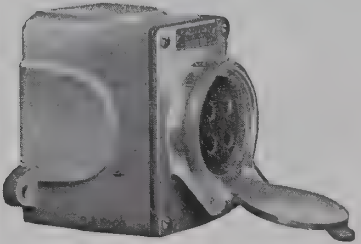
†Polarized—one wide and one narrow blade.

R&S Type FC Weathertight Angle Type Receptacles

2, 3, and 4-Wire—Polarized

250 Volts D.C.—440 Volts A.C.


Type FCA
45° Angle Type


Type FCR
Straight Type

Box and receptacle housing are heavy castings provided with gaskets and a cast, hinged spring flap cover.

Has positive polarization to insure assembly of contact members. Provision is made for grounding to meet Underwriters' requirements.

Plug housing is light in weight and easy to handle.

Outlets: maximum, 15–30 amperes, 1¼-inch; 60 amperes, 1½-inch; 100 amperes, 2-inch; 200 amperes, 3-inch.

Corrosion resisting finish.

Also available for 600 volts a.c.

When ordering, specify size and location of outlets.

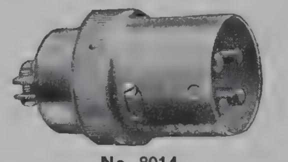
Straight type: numbers shown are for 45° angle type; for straight type, add prefix FCR to number.

Style		Receptacles without Plugs				Plugs Only	
		Single-Gang		2-Gang			
Wire	Pole	No.	Each	No.	Each	No.	Each
15 Amperes							
2	2	3102	$10.50	3109	$21.00	3106	$9.00
*2	3	3103	11.75	3110	23.50	3107	10.25
3	3	3103W	11.75	3110W	23.50	3107W	10.25
*3	4	3104	13.00	3111	26.00	3108	11.50
4	4	3104W	13.00	3111W	26.00	3108W	11.50
30 Amperes							
2	2	3112	$11.00	3119	$22.00	3116	$9.50
*2	3	3113	12.25	3120	24.50	3117	10.75
3	3	3113W	12.25	3120W	24.50	3117W	10.75
*3	4	3114	13.50	3121	27.00	3118	12.00
4	4	3114W	13.50	3121W	27.00	3118W	12.00
60 Amperes							
2	2	3122	$19.00	3129	$38.00	3126	$11.50
*2	3	3123	21.50	3130	43.00	3127	14.00
3	3	3123W	21.50	3130W	43.00	3127W	14.00
*3	4	3124	24.00	3131	48.00	3128	16.50
4	4	3124W	24.00	3131W	48.00	3128W	16.50
100 Amperes							
2	2	3132	$33.00	3139	$66.00	3136	$21.00
2	3	3133	35.50	3140	71.00	3137	23.50
*3	3	3133W	35.50	3140W	71.00	3137W	23.50
3	4	3134	38.00	3141	76.00	3138	26.00
*4	4	3134W	38.00	3141W	76.00	3138W	26.00
200 Amperes							
2	2	3142	$62.50	3149	$125.00	3146	$35.50
*2	3	3143	67.50	3150	135.00	3147	40.50
3	3	3143W	67.50	3150W	135.00	3147W	40.50
*3	4	3144	72.50	3151	145.00	3148	45.50
4	4	3144W	72.50	3151W	145.00	3148W	45.50

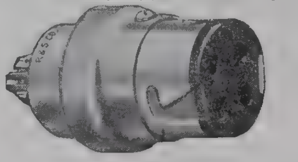
*Equipment grounded through separate pole; all others have equipment grounded through shell only.

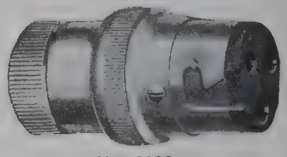
R&S Ever-Lok Plugs and Connectors

2, 3, and 4-Pole—Polarized


No. 8014
Plug—Male End
With Clamp Type Cable Grip

No. 8153
Plug—Male End
With Bushing Type Cable Grip


No. 8024
Connector—Female End
With Clamp Type Cable Grip


No. 8093
Connector—Female End
With Bushing Type Cable Grip

Plug is steel-clad with encased locking spring in non-separable housing, and has adjustable cord grip. Contacts are precision made, self-wiping, and self-aligning.

Connector is steel-clad and has adjustable grip. Contacts are precision made, self-wiping, and self-aligning.

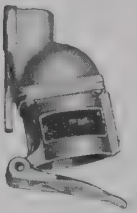
Cadmium plated finish.

Style		With Clamp Type Cable Grip					With Bushing Type Cable Grip				
		Plug —Male End		Connector —Female End		Max. Cable	Plug —Male End		Connector —Female End		Max. Cable
Wire	Pole	No.	Each	No.	Each	In.	No.	Each	No.	Each	In.
10 Amperes, 250 Volts D.C.—600 Volts A.C. 20 Amperes, 125 Volts D.C. or A.C.											
2	2	8012	$3.20	8022	$3.90	½	8152	$4.20	8092	$4.90	13/16
2	3	8013	3.30	8023	4.00	½	8153	4.30	8093	5.00	13/16
3	4	8018	3.40	8028	4.10	½	8158	4.40	8098	5.10	13/16
20 Amperes, 600 Volts A.C. 30 Amperes, 250 Volts D.C. or A.C.											
2	2	8016	$3.95	8026	$4.65	⅝	8156	$4.95	8096	$5.65	1⅛
2	3	8015	4.05	8025	4.75	⅝	8155	5.05	8095	5.75	1⅛
3	4	8014	4.15	8024	4.85	⅝	8154	5.15	8094	5.85	1⅛

Type A Ralco Circuit Breaking Plugs and Receptacles

Switch Blade Contact Type—Self Closing Cover

30 and 60 Amperes, 250-Volt D.C.; 600-Volt A.C.



Contacts made from rolled copper bar of proper degree of hardness and temper; self-aligning, self-cleaning and easily renewed. Each individual contact is enclosed in a separate chamber; opening at make-and-break end is just large enough to allow plug contact to enter.

The 30-ampere size has terminal binding screw; 60-ampere size, soldering lugs.

Receptacle housing and conduit body are gray iron, cadmium finish. Plug housing is aluminum alloy.

No.	Each	No. of Poles	Size Conduit Inches	No.	Each	No. of Poles	Size Conduit Inches
30 Amperes							
221A1	$7.25	2	½	321A4	$8.15	3	1¼
221A2	7.35	2	¾	421A3	8.75	4	1
321A2	7.85	3	¾	421A4	8.95	4	1¼
321A3	7.95	3	1	......	....	.	...
60 Amperes							
222A3	$11.65	2	1	322A5	$12.85	3	1½
222A4	11.75	2	1¼	422A5	14.85	4	1½
322A4	12.75	3	1¼	......	.....	.	...

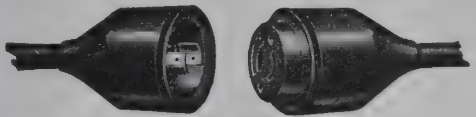
MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

Hubbell Seal-Tite Rubber Covers

Provide protection against breakage and moisture. Recommended for lock-fast connectors in packing plants, fire departments, breweries, distilleries, mines, bottling plants, dairies, tunnels and for general industrial requirements.

For Twist-Lock Connectors

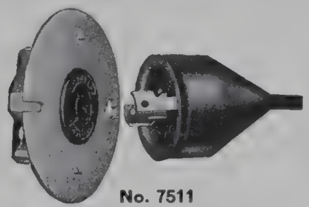


No. 7510

Number covers one-half only, and does not include connector, cap or wire. Two covers are required for each complete connector.

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7510	$55.00	For Nos. 7101 or 7102, 20A, 2-Wire	10	30	5
7521	55.00	Long Cover for No. 7101 when used with No. 7511, below	10	30	5
7530	76.00	For Nos. 7311 or 7313, 20A, 3-Wire	10	30	6½
7522	76.00	Long Cover for No. 7313, when used with No. 7531, below	10	30	5
7569	55.00	For Nos. 7554 or 7555, 10A, 3-Wire	10	30	5
7435	95.00	For Nos. 7411 or 7413, 20A, 4-Wire	10	20	4
7509	95.00	Long Cover for No. 7413 when used with No, 7541, below	10	20	4

For Twist-Lock Caps Used with Flush Receptacles

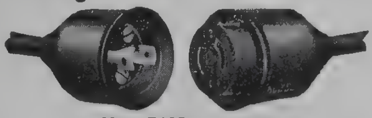


No. 7511

The No. 7511 rubber cover is slightly shorter than those listed above for cord connectors, and is designed for use with Twist-Lock Flush Receptacles with steel box covers attached or with standard brass flush plates.

7511	$55.00	For No. 7102, 2-Wire Cap	10	30	4
7531	76.00	For No. 7311, 3-Wire Cap	10	30	5½
7541	95.00	For No. 7411, 4-Wire Cap	10	20	4

For Midget Twist-Lock Connectors



Nos. 7465 and 7464

Number covers one half only and does not include connector, cap or wire. Two are required for a complete cord connector.

7470	$55.00	For Midget Connectors	10	30	3

Hubbell Seal-Tite Rubber Closure Plugs

For Twist-Lock Receptacles

This closure plug is made of high quality rubber and is designed to Seal-Tite Twist-Lock Flush Receptacles when not in use. Furnished complete with polished nickel chain.

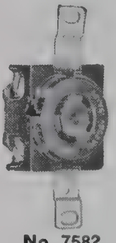
7532	$72.00	For 2-Wire 20 Amp. Receptacles	10	20	3
7529	72.00	For 3-Wire 10 Amp. Receptacles	10	20	3
7533	72.00	For 3-Wire 20 Amp. Receptacles	10	20	3
7534	84.00	For 4-Wire 20 Amp. Receptacles	10	20	3
7648	72.00	For 2-Wire 10 Amp. Receptacles	10	20	3

Hubbell 10-Ampere Twist-Lock Devices

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

3-Wire Receptacles

Single



No. 7582

No. 7582 receptacle fits any standard single flush receptacle plate.

If desired grounded, suffix letter G to number.

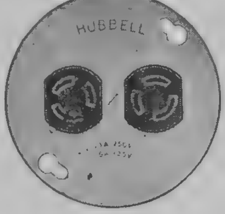
10A. 250V.
HUBBELL
TWIST-LOCK

Nos. 7583 or 7584

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7582	$177.00	Bakelite Single Receptacle	10	50	9
7583	190.00	Bakelite Single Receptacle with 3¼-Inch Cover	10	30	11
7584	204.00	Bakelite Single Receptacle with 4-Inch Cover	5	30	13
7585	177.00	Bakelite Single Receptacle with Short Strap; 1¹⁵⁄₁₆-Inch Centers	10	50	9
7586	177.00	Bakelite Single Receptacle with Short Strap; 1¾-Inch Centers	10	50	9

Duplex

No. 7580



No. 7581

No. 7580 receptacle takes any standard duplex receptacle flush plate.

If desired grounded, suffix G to No.

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7580	$257.00	Bakelite Duplex Receptacle	10	15	13
7581	286.00	Bakelite Duplex Receptacle with 4-Inch Cover	5	30	11
7785	277.00	Bakelite Receptacle, Two Feeds, One Return	5	30	11
7786	277.00	Bakelite Receptacle, Two Feeds, Two Returns	5	30	11

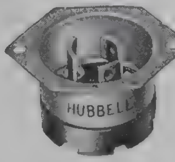
3-Wire Bakelite Connector Bodies

No. 7555

If desired grounded, suffix letter G to number.

No.	Per 100	Description	Diam. Inches	Carton	Std. Pkg.	Pkg. Wt. Lb.
7555	$163.00	Body	.296 to .562	10	50	8
7559	163.00	Body	.406 to .625	10	50	8

3-Wire Polarized Motor Plugs

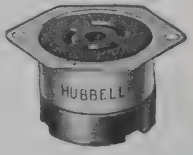


No. 7556

Supporting screw holes, 1¹⁵⁄₁₆ inches on centers.

Diameter of base, 1½ inches.

Height of No. 7556, 1⅛ inches; No. 7557, 1¹¹⁄₃₂ inches.



No. 7557

If desired grounded, suffix letter G to No.

No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7556	$135.50	Bakelite, with Contact Blades	10	50	5
7557	150.00	Bakelite, Female Flush Base	10	50	7

Bryant Twist Lock Devices

Listed by Underwriters' Laboratories

No. 7062

2-Wire Caps

20 Amps., 250 Volts
Composition Cap

No.	Per 100	Cord Hole In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
7062	$55.00	13/32	10	50	7

No. 9763

Armored Covered Cord Grip Car

7102	$69.00	19/64 to 9/16	10	30	5
7238	69.00	13/32 to 5/8	10	30	5

Rubber Cord Grip Cap

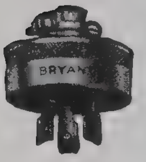
9763	$85.50	19/64 to 9/16	10	30	5

No. 7554

3-Wire Caps

15 Amps., 125 Volts; 10 Amps., 250 Volts
Bakelite Cord Grip Cap

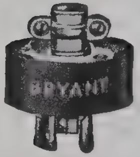
7554	$95.00	19/64 to 9/16	10	50	6
7558	95.00	13/32 to 5/8	10	50	6


No. 7311

20 Amps., 250 Volts
10 Amps., 575 Volts A.C.

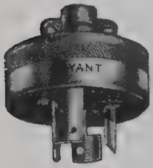
Armored Cord Grip Cap

7311	$148.00	7/16 to 3/4	10	30	8


No. 9965

Rubber Cord Grip Cap

9965	$156.50	7/16 to 3/4	10	30	8


No. 7411

4-Wire Caps

20 Amps., 250 Volts
10 Amps., 575 Volts A.C.

Armored Cord Grip Cap

7411	$206.00	7/16 to 3/4	10	20	8

Rubber Cord Grip Cap

9967	$224.50	7/16 to 3/4	10	20	9

No. 7101

2-Wire Connector Bodies

20 Amps., 250 Volts

Armored Cord Grip Body

7101	$114.50	19/64 to 9/16	10	30	9
7224	114.50	13/32 to 5/8	10	30	9

No. 7555

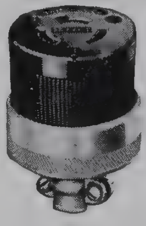
3-Wire Connector Bodies

15 Amps., 125 Volts; 10 Amps., 250 Volts

Bakelite Cord Grip Body

7555	$163.00	19/64 to 9/16	10	50	8
7559	163.00	13/32 to 5/8	10	50	8

Bryant Twist Lock Devices


No. 7313, 3-Wire

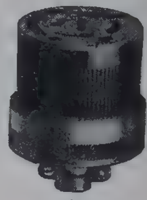
Connector Bodies

Listed by Underwriters' Lab.
20 Amp., 250 Volts; 10 Amp., 575 Volts, A.C.
Armored Cord Grip Body

Cord hole, .437 to .750 or 7/16 to 3/4 inches.

No. 7313, 3-Wire. Ctn., 10; std. pkg., 30; wt., 11 lb.
No. **7313**....per 100 **$228.00**

No. 7413, 4-Wire. Ctn., 10; std. pkg., 20; wt., 11 lb.
No. **7413**....per 100 **$286.00**


No. 7413, 4-Wire

No. 7612 2-Wire Plug Bases

660 Watts, 250 Volts

Not listed by Underwriters' Laboratories. Carton, 10. Standard package, 100. Weight per standard package, 18 pounds.
No. **7612**......................per 100 **$106.50**

No. 7210

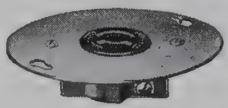
2-Wire Porcelain Flush Outlets

Listed by Underwriters' Laboratories
20 Amperes, 250 Volts

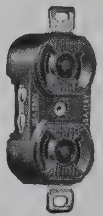
No. 7210. Takes standard single outlet plates. Carton, 10. Standard package, 50. Weight per standard package, 12 lb.
No. **7210**....................per 100 **$90.50**

On Steel-Plated Covers

No. 7216. With 3½-inch cover. Carton, 10. Standard package, 50; wt. 25 lb.
No. **7216**......................per 100 **$104.50**


No. 7216

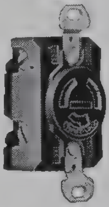
No. 7217. With 4-inch cover. Carton, 10. Standard package, 30. Weight per standard package, 17 lb.
No. **7217**...........per 100 **$113.50**



2-Wire Bakelite Flush Outlets

Listed by Underwriters' Laboratories
15 Amperes, 125 Volts; 10 Amperes, 250 Volts

No. 7540. Takes standard duplex outlet plate. Carton, 10. Standard package, 50. Weight per standard package, 14 pounds.
No. **7540**........................per 100 **$137.00**



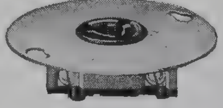
3-Wire Flush Outlets

Listed by Underwriters' Laboratories
20 Amp., 250 Volts; 10 Amp. 575 Volts, A.C.

No. 7310. Takes standard single outlet plates. Carton, 10. Standard package, 30. Weight per standard package, 11 pounds.
No. **7310**.....................per 100 **$206.00**

No. 7310-G. Grounded. Carton, 10. Standard package, 30. Wt. per std. pkg., 11 lb.
No. **7310-G**...................per 100 **$206.00**

On 4-Inch Steel-Plated Cover



No. 7517. Carton, 5. Standard package, 20. Weight per standard package, 13 pounds.
No. **7517**...........per 100 **$228.00**

3-Wire Flush Outlets

Listed by Underwriters' Laboratories
15 Amperes, 125 Volts; 10 Amperes, 250 Volts

No. 7580. Takes standard duplex outlet plate. Carton, 10. Standard package, 50. Weight per standard package, 11 pounds.
No. **7580**...............................per 100 **$257.00**

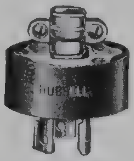
On 4-Inch Steel-Plated Cover

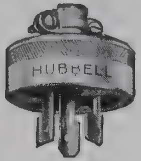
No. 7581. Duplex outlets in 4-inch diameter cover. Carton, 5. Standard package, 30. Weight per standard package, 15 pounds.
No. **7581**. ....per 100 **$286.00**

Hubbell 20-Ampere 3-Wire Twist-Lock Connector Bodies and Plug Caps

20 Ampere, 250 Volts, A.C. or D.C.; 10 Ampere, 600 Volts, A.C.

No. 7313


No. 9965

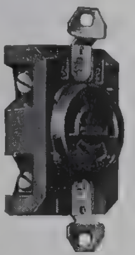

No. 7311

Polarized. With adjustable cord grip.
Packed 10 in a carton; 30 in a standard package.

No.	Per 100	Description	Cord Diam. Inches	Pkg. Wt. Lb.
7311	$148.00	Armored Cap........	.437 to .750	8
7313	228.00	Bakelite Body.......	.437 to .750	11
9965	156.50	Rubber Cap.........	.437 to .750	6

Hubbell 20-Ampere 3-Wire Twist-Lock Flush Receptacles

20 Ampere, 250 Volts A.C. or D.C.
10 Ampere, 600 Volts A.C.


No. 7310

Polarized. Receptacle made of black baked porcelain. Steel box cover plated to resist corrosion.

No. 7310 takes standard single outlet plates.

20A.
250V.
TWIST-LOCK
HUBBELL
No. 7517

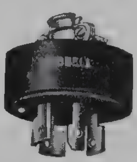
No.	Per 100	Description	Carton	Std. Pkg.	Pkg. Wt. Lb.
7310	$206.00	Single Receptacle....	10	30	11
7517	228.00	Receptacle with 4″ Box Cover Attached	5	20	12

If desired grounded, suffix letter G to No.

Hubbell 20-Ampere 4-Wire Twist-Lock Connector Bodies and Plug Caps

20 Amperes, 250 Volts, A.C. or D.C.; 10 Amperes, 600 Volts, A.C.

No. 7413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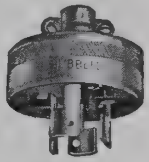

No. 7411

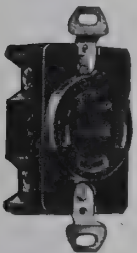
Polarized. With adjustable cord grip.
Packed 10 in a carton; 20 in a standard package.

No.	Per 100	Description	Cord Diam. Inches	Pkg. Wt. Lb.
7411	$206.00	Armored Cap.........	.437 to .750	7
7413	286.00	Bakelite Body........	.437 to .750	10
9967	224.50	Rubber Cap..........	.437 to .750	6

Hubbell 20-Ampere 4-Wire Twist-Lock Flush Receptacles

20 Amperes, 250 Volts A.C. or D.C.

10 Amperes, 600 Volts A.C.


No. 7410

Polarized.

Made of black baked porcelain.

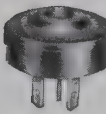
Steel cover plated to resist corrosion.

20A
250V
TWIST-LOCK
No. 7417

No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb.
*7410	$258.00	Single Receptacle........	10	20	8
7417	272.00	Receptacle with 4″ Box Cover Attached........	5	15	10

If desired grounded, suffix letter G to No.
*Fits plate Nos. 7420, 7439, 91111 and 92111.

No. 9109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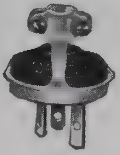
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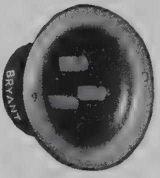


No. 9115

No. 9113

No. 9116

No. 9117

No. 9119

No. 9324

Bryant 3-Wire Caps, Connectors, and Receptacles

15 Amperes, 125 Volts; 10 Amperes, 250 Volts

Listed by Underwriters' Laboratories

Caps

Polarized—Black Rubber

No.	Per 100	Cord Hole In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
9109	$50.50	$\frac{13}{32}$	10	50	10

Brown Bakelite

9110	$49.50	$\frac{13}{32}$	10	50	4

Black Composition

9111	$49.50	$\frac{13}{32}$	10	50	6

Armored Cord Grip

9112	$85.50	$\frac{3}{8}$ to $\frac{1}{2}$	10	50	8

Flush Motor Plug Cap

Screw spacing, $2\frac{3}{16}$ inches.

9115	$114.50	..	10	50	10

Black Composition Cord Connectors

Body

9113	$104.00	$\frac{27}{64}$	10	50	9

Body with Armored Cord Grip

9114	$141.00	$\frac{3}{8}$ to $\frac{1}{2}$	10	50	12

Receptacles

Bases of Nos. 9116 and 9120 are $2\frac{9}{16}$x$1\frac{11}{16}$ inches. Depth, $\frac{31}{32}$ inches. Supporting screw spacing, $3\frac{9}{32}$ inches. Top wiring terminals. Take standard F plates.

Black Composition Flush

9116	$166.00	..	10	60	15

Porcelain, Flush Conduit Box

Bakelite top, screw terminals.

9117	$89.50	..	10	50	12

Porcelain Concealed Base

No. 9119 has supporting screw spacing of $1\frac{3}{4}$ inches; diameter, $2\frac{1}{2}$ inches.

9119	$117.00	..	10	50	20

Black Composition Flush, with Grounding Terminal Connected to Yoke

9120	$165.00	..	10	50	15

3-Wire Composition Flush

Mounted on 4-inch cadmium-plated box cover.

For grounding terminal connected to the yoke, add suffix G to catalog number.

9121	$186.00	..	5	50	35
9121G	186.00	..	5	50	35

20 Amperes, 250 Volts Cord Grip Cap

Steel covered, cadmium plated.
No. 9322G has grounded cover.

9322	$148.50	$\frac{3}{8}$ to $\frac{5}{8}$	10	20	4
9322G	148.50	$\frac{3}{8}$ to $\frac{5}{8}$	10	20	4

Composition Cord Connector

With steel covered cap, cadmium-plated.

9323	$217.50	$\frac{3}{8}$ to $\frac{5}{8}$	10	20	8

Porcelain Receptacles

Flush

Base, $2\frac{9}{16}$x$1\frac{5}{8}$ inches.
Depth, $1\frac{7}{32}$ inches.
Screw spacing, $3\frac{9}{32}$ inches.
Takes standard F plate.
No. 9326G has grounded yoke.

No.	Per 100	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
9326	$184.00	10	30	12
9326G	184.00	10	30	12
9326I	194.50	10	30	12

Concealed Base

Screw spacing, $1\frac{3}{4}$ inches.
Base, $2\frac{1}{2}$-inch diameter.

9325	$149.50	10	30	14

For 4-Inch Outlet Box

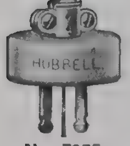
With cadmium-plated cover.

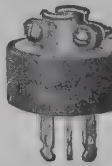
9324	$204.00	5	30	22

Hubbell 10-Ampere 3-Wire Attachment Plug Caps

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Polarized. Packed 10 in a carton, 50 in a standard package.


No. 7055


No. 9750

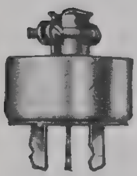
No.	Per 100	Cord Diam. In.	Pkg. Wt. Lb.
Armored Cord Grip			
7055	$85.50	.296–.562	7
7309	85.50	.406–.625	7
Rubber Cord Grip			
9750	$85.50	.296–.562	8
9751	85.50	.406–.625	8

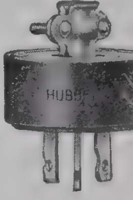
If desired grounded, suffix letter G to No.

Hubbell 20-Ampere 3-Wire Attachment Plug Caps

20 Amperes, 250 Volts

Polarized. Packed 10 in a carton, 20 in a standard package.


No. 7089


No. 9977

No.	Per 100	Cord Diam. In.	Pkg. Wt. Lb.
Armored Cord Grip			
7089	$148.50	.406–.625	5
Rubber Cord Grip			
9977	$140.00	.406–.625	5

If desired grounded, suffix letter G to No.

No. 5612 Hubbell Attachment Plug Bases

With Double T-Slots

660 Watts, 250 Volts

Black bakelite with medium screw base.

Packed 10 in a carton, 100 in a standard package.

Package weight, 12 pounds.

No. **5612**......................per 100 **$52.50**

Type PRG Ralco 3-Pole Receptacle Plugs

With Cable Grip

30 and 60 Amperes, 250-Volt D.C.; 600-Volt A.C.

For all types of receptacles.

Plug housing made from aluminum alloy.

Provided with a tapered rubber bushing and a compression nut for compressing the rubber bushing tightly around the portable cord or cable. Provided with means to connect the ground wire in the portable cord or cable to the plug housing.

Takes 4-conductor cable.

	30 Amperes		
No..................	PRG-321-11	PRG-321-13	PRG-321-15
Type PRG......each	**$6.80**	**6.80**	**6.80**
Diam. of Cable....in.	.562–.687	.687–.812	.812–.937
	60 Amperes		
No..................	PRG-322-18	PRG-322-20	PRG-322-22
Type PRG......each	**$9.50**	**9.50**	**9.50**
Diam. of Cable....in.	1.000–1.125	1.125–1.250	1.250–1.375

Bryant Connecting Devices

Armored Cord Grip Connector Body

10 Amps., 250 Volts; 15 Amps., 125 Volts

T-slots; with 7/16-inch cord hole.

No. 5103

No. 3856

No.	Per 100	Carton	Std. Pkg.	Pkg. Wt. Lb.
5103	**$91.50**	10	50	9
Cord Connector **20 Amperes, 250 Volts**				
3856	**$153.50**	10	30	11

No. 103 Bryant Composition Cord Connector Bodies

15 Amperes, 125 Volts;
10 Amperes, 250 Volts

Diameter, 1 3/8 inches. Cord hole, 13/32 inch. Has T slots.

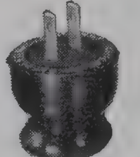
Carton, 10; standard package, 50.

Package weight, 7 pounds.

No. **103**........................per 100 **$59.00**

No. 1400 Safeway Plugs

15 Amp., 125 Volts; 10 Amps., 250 Volts
Listed by Underwriters' Laboratories



A 2-wire, parallel, Neotex-covered plug for industrial and railroad service. Brass blades can be removed from the body.

Carton 10; standard package, 100.

Weight, standard package, 13 pounds.

No. **1400**, 7/16-In. Cord Hole........each **$.55**

No. 1402 Safeway Neotex Covered Plugs

2-Wire Polarity

15 Amp., 125 Volts; 10 Amp., 250 Volts
Listed by Underwriters' Laboratories

For heavy duty industrial service. Brass blades mounted on insulating material; removable. Practically non-breakable.

Packed 10 in a carton, 100 in std. pkg. Weight 13 pounds.

No. **1402**, 7/16-In. Cord Hole........each **$.65**

No. 1403 Safeway Neotex Covered Plugs

3-Wire Grounded

15 Amp., 125 Volts; 10 Amp., 250 Volts
Listed by Underwriters' Laboratories

For heavy industrial service. Brass blades mounted on insulating material; removable. Practically non-breakable.

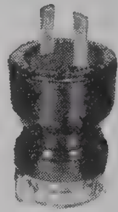
Packed 10 in a carton; 100 in standard package. Weight, 13 pounds.

No. **1403**, 7/16-In. Cord Hole........each **$.75**

No. 1406 Safeway Neotex Covered Plugs

2-Wire Polarity—Cord Grip

15 Amp., 125 Volts; 10 Amp., 250 Volts
Listed by Underwriters' Laboratories



For heavy industrial service. Brass blades mounted on insulating material; removable. Practically non-breakable.

Packed 10 in a carton; 100 in standard package. Weight 18 pounds.

No. **1406**, 3/4-In. Cord Hole.......each **$1.00**

No. 1407 Safeway Neotex Covered Plugs

3-Wire Grounded—Cord Grip

15 Amp., 125 Volts; 10 Amp., 250 Volts
Listed by Underwriters' Laboratories

For heavy industrial service. Brass blades mounted on insulating material; removable. Practically non-breakable.

Packed 10 in a carton; 100 in standard package. Weight, 19 pounds.

No. **1407**, 3/4-In. Cord Hole.......each **$1.10**

Protex Junior Rubber Covered Plugs

15 Amperes, 125 Volts; 10 Amperes, 250 Volts

For household appliances. Has plus cap with parallel contacts. Grip end of plug extends over cord to prevent cord breakage.

Packed 10 in carton; 100 in standard pkg. Weight, 8 pounds.

No. **1420**, 5/16-Inch Cord Hole....................each **$.25**
No. **1421**, 7/16-Inch Cord Hole....................each **.25**

Bryant Standard Composition Caps

15 Amperes, 125 Volts; 10 Amperes, 250 Volts

No. JK

No. JK with armored cord grip and 13/32 to 5/8-inch cord hole. No. JM with armored cord grip, 1/2-inch cord hole.

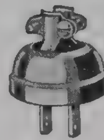
Carton, 10; standard package, 50. Weight package, 7 pounds.

No. JK....................................per 100 **$46.80**
No. JM....................................per 100 **46.80**

No. JX Bryant Composition Caps

With Cord Grip

15 Amperes, 125 Volts; 10 Amperes, 250 Volts



13/32 to 5/8-inch cord hole.

Steel armored cap, cadmium-plated.

With cord grip.

No.	Per 100	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
JX	**$53.00**	10	50	6

Safeway Neotex Cord Connector Bodies

15 Amperes, 125 Volts—10 Amperes, 250 Volts

Actual tests have proven the Safeway neotex cord connector capable of resisting direct pulls up to 15 pounds.

Nos. 1500 and 1501

No. 1500

Will fit standard parallel and polarity 2-wire plugs.

Standard cord hole, 7/16-inch. Can be furnished with 5/16 to 5/8 inch cord holes on specifications.

Packed 10 in a carton, 100 in standard package.

Weight standard package, 13 pounds.

No. **1500**, Parallel.............................each **$.90**
No. **1501**, Polarity.............................each **1.00**

Nos. 1502 and 1503 with Cord Grip

No. 1502

Will fit standard parallel and polarity 2-wire plugs.

Cord grip 1/4 to 3/4 inch inclusive.

Packed 10 in a carton, 100 in a standard package.

Weight standard package, 18 pounds.

No. **1502**, Parallel with Cord Grip.ea. **$1.25**
No. **1503**, Polarity with Cord Grip.ea. **1.35**

No. 1508 Three Wire, with Cord Grip

For trucks, trailers, shop for grounded tools, etc., or three phase motor wiring.

Cord grip 3/4-inch.

Packed 10 in a carton, 100 in a standard package.

Weight standard package, 19 pounds.

No. **1508**, Three Wire Female with Cord Grip.........................each **$1.70**

No. 1508

Bryant Bakelite and Rubber Handle Caps

No. HF

Nos. HRE and HRF

Nos. HUT and HUX

Bakelite Handle Caps

No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb., Pkg.
HF	**$15.00**	With 11/32-Inch Hole	10	100	5

Rubber Handle Caps

HRA	**$25.00**	.312 to .390-In. Hole	25	100	7
HRB	**26.00**	.240 to .312-In. Hole	25	100	7
HRE	**29.00**	.312 to .390-In. Hole	25	100	8
HRF	**29.50**	.260 to .312-In. Hole	25	100	8
HRS	**26.50**	.578-Inch Hole....	25	100	7

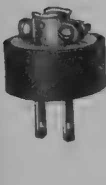
Bakelite Caps

HUV	**$13.50**	13/32-Inch Hole.....	25	500	18
HUY	**13.50**	5/16-Inch Hole......	25	500	18
HUT	**13.50**	9/32x3/8-Inch Hole...	25	500	18
HUX	**13.50**	1/4x3/16-Inch Hole...	25	500	18

No. 9754 Bryant Plug Caps

Rubber—Cord Grip

15 Amperes, 125 Volts—10 Amperes, 250 Volts
Listed by Underwriters' Laboratories



Cord hole, 19/64 to 5/8-inch.

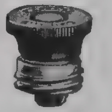
Carton, 10; Standard package, 50. Weight package, 7 pounds.

No. **9754**......................per 100 **$51.50**

No. 100 Bryant Plug Bodies

Composition Screw Body—for Parallel Blades

660 Watts, 250 Volts

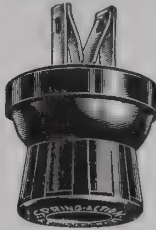


Packed 10 to a carton; 250 to a standard package. Weight of standard package, 19 pounds.

No. **100**..........................each **$26.00**

No. 127 Spring-Action Attachment Plug Caps

15 Amp., 125 V.



A heavy duty black rubber handle grip cap for industrial use with sanding machines, grinders, heavy machinery, etc.

Size hole, .540.

Listed by Underwriters' Laboratories.

No. **127**.......................each **$.20**

No. 5262 Bryant Grounding Type Duplex Convenience Outlets

For Grounding Exposed Metal Parts of Portable Appliances

15 Amperes, 125 Volts
Listed by Underwriters' Laboratories

Designed for use with either metallic or nonmetallic wiring systems.

Of bakelite construction and provided with washer type plaster ears and large terminal binding screws for wiring. Takes standard duplex outlet plate.

Has two current carrying contacts and one grounding contact. Grounding contact is electrically connected to yoke and also to a terminal on side of outlet to which a grounding conductor may be connected. Binding screw of terminal is hexagonal shaped and colored green for identification.

In metallic system wiring, grounding is made directly through metal enclosure. For non-metallic systems, grounding is completed through a third wire serving as a grounding conductor.

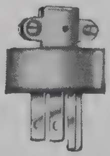
No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
5262	**$219.00**	Brown......	10	50	13
5262-I	**231.00**	Ivory.......	10	50	13

Bryant 3-Wire Caps

For Use With No. 5262 Outlets

15 Amperes, 125 Volts
Listed by Underwriters' Laboratories

No. 5263



No. 5264

Provided with a grounding blade so designed that it cannot engage with current carrying contacts, being longer, grounding connection is made before current carrying blades make contact.

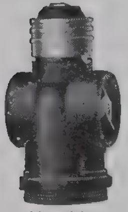
Bakelite

No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
5263	**$47.00**	Brown................	10	50	5
5263-I	**52.00**	Ivory..................	10	50	5

Armored with Cord Grip

No.	Per 100	Cord Hole In.	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
5264	**$81.00**	19/64 to 5/8	10	50	8

Bryant Plural Plugs



No. 124

2 Power and 1 Lamp Outlet

Listed by Underwriters' Laboratories

660 Watts, 250 Volts

Made of brown bakelite.

No. 125

No.	Per 100	Description	Ctn.	Std. Pkg.	Wt. Lb. Pkg.
124	$56.00	Standard	10	100	12
125	87.00	Pull Chain	10	100	18

Bryant Bakelite Flush Receptacles

No. 4812

Listed by Underwriters' Laboratories
15 Amperes, 125 Volts; 10 Amperes, 250 Volts

Packed 10 in a carton.

No. 4812 Duplex Top Wiring Terminals

With T Slots—Double-Sided Contacts—Wide Yoke

Has four terminal screws.

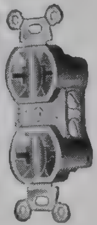
No. 4812, Brown	per 100	$85.00
Standard Package		100
Wt., Standard Package	pounds	22

Side Wiring Terminals

With T Slots
Double-Sided Contacts
Wide Yoke
No. 4831, Single

	Brown	Ivory
No.	4831	4831-I
Per 100	$40.50	48.00
Std. Pkg.	100	50
Wt. Std. Pkg. pounds	15	7

No. 4831



No. 4832

No. 4832, Duplex—With Four Terminal Screws

	Brown	Ivory
No.	4832	4832-I
Per 100	$44.00	51.50
Standard Package	100	50
Weight, Standard Package .... pounds	20	11

No. 4832-X

For 2-Circuit Installations
For Switch Control of One Outlet
Two Feeds, Two Returns

	Brown	Ivory
No.	4832-X	4832-XI
Per 100	$64.00	74.00
Std. Pkg.	100	50
Wt., Std. Pkg. .... lb.	20	11

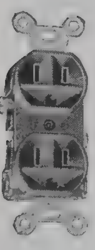
Two Feeds, One Return

	Brown	Ivory
No.	4832-Y	4832-YI
Per 100	$59.00	67.00
Std. Pkg.	100	50
Wt., Std. Pkg. .... lb.	20	11

No. 5252 Bryant Duplex Flush Mounting Outlets

Side Wiring with Two Grounding Terminals

15 Amperes, 125 Volts—Parallel Slots
Listed by Underwriters' Laboratories



Three wire grounding devices for non-metallic and metallic systems. For non-metallic systems the grounding is completed through a third wire serving as a grounding conductor. For metallic systems the grounding is made directly through the metal enclosure.

Outlets have two current carrying contacts and two ground contacts.

Packed 10 in a carton; 50 in a standard package.

Weight per standard package, 10 pounds.

No. 5252, Brown Plastic	per 100	$110.00
No. 5252-I, Ivory Plastic	per 100	122.00

Bryant Mercury Silent Flush Switches

10 Amperes, 125 Volts; 5 Amperes, 250 Volts—T Rated
Listed by Underwriters' Laboratories

Contact takes place in small completely enclosed glass sealed metal button. Rugged casing is of black bakelite. Binding screws are adequate for No. 12 wire. Wide mounting; ears facilitate alignment of switch with mounting surface.

No. 4701

No. 4703

No.	Per 100	Handle	Ctn.	Std. Pkg.	Wt. Lb. Std. Pkg.
***Single Pole**					
4701	$99.00	Brown	10	100	21
4701-I	110.00	Ivory	10	50	11
3-Way					
4703	$187.00	Brown	10	50	14
4703-I	198.00	Ivory	10	30	9
Double-Pole					
4702	$187.00	Brown	10	50	14
4702-I	198.00	Ivory	10	30	9
4-Way					
4704	$385.00	Brown	2	10	3
4704-I	396.00	Ivory	2	10	3

*15 Amperes, 120 volts, a.c.

Bryant Competitive Grade Flush Tumbler Switches

No. 61

No. 63

T Rated

10 Amps., 125 Volts; 5 Amps., 250 Volts
Listed by Underwriters' Laboratories

Side wiring.

Mechanism enclosed in bakelite

Dimensions of cups, $1\frac{21}{32}$x$2\frac{9}{32}$x$1\frac{7}{32}$ inches, deep.

No.	61	61-I	63	63-I
Per 100	$39.00	44.50	55.00	60.00
Pole	Single	Single	3-Way	3-way
Color Handle	Brown	Ivory	Brown	Ivory
No. to Carton	10	10	10	10
Standard Package	100	100	50	50
Weight Std. Pkg. lb.	16	16	9	9

Bryant Flush Tumbler Switches

No. 3951

General Purpose Type With Porcelain Cups

T Rated

Depth of porcelain cups, $1\frac{3}{32}$ inches.

Supporting screw spacing, $3\frac{9}{32}$ inches.

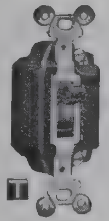
Screws for mounting are furnished.

No.	Per 100	Description	Carton	Std. Pkg. No.	Std. Pkg. Wt. Lb.
Single Pole	**10 Amperes, 125 Volts—5 Amperes, 250 Volts**				
3951	$58.50	Brown Handle	10	100	30
3951-I	62.50	Ivory Handle	10	50	14
3951-L	136.50	Lock Type	10	100	31
3951-M	228.00	Momentary Contact	10	100	31
3951-SH	84.50	Steel, Stamped Handle	10	100	31
Double Pole	**10 Amperes, 125 or 250 Volts**				
3952	$110.50	Brown Handle	10	50	17
3952-I	114.50	Ivory Handle	10	25	8
3952-L	204.00	Lock Type	10	50	17
3952-M	278.50	Momentary Contact	10	50	17
3952-SH	132.50	Steel, Stamped Handle	10	50	17
Three-Way	**10 Amperes, 125 Volts—5 Amperes 250 Volts**				
3953	$80.00	Brown Handle	10	50	17
3953-I	84.00	Ivory Handle	10	25	8
3953-L	165.00	Lock Type	10	50	17
3953-H	233.50	Momentary Contact	10	50	17
3953-SH	126.50	Steel, Stamped Handle	10	50	17
Four-Way	**5 Amperes, 125 Volts—2 Amperes, 250 Volts**				
3954	$248.00	Brown Handle	2	10	4
3954-I	252.00	Ivory Handle	2	10	4
3954-L	490.50	Lock Type	2	10	4
3954-SH	414.00	Steel, Stamped Handle	2	10	4

Bryant Enclosed Flush Tumbler Switches

T Rated

Black Composition Cups



These switches will give uniform performance, high minimum break-down, and exceptionally long life.

Depth of cups: $1\frac{3}{8}$ inches.

Supporting screw spacing, $3\frac{9}{32}$ inches.

When ordering combination plates, specify S section. Single plate 96071.

Flush Tumbler Switches

With Brown Bakelite Handles

No.	Per 100	Description	Amperes 125 Volts	Amperes 250 Volts	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
4961	**$117.00**	S.P. Indicating...	10	5	10	50	18
4962	**194.50**	D.P. Indicating...	10	10	2	10	4
4963	**143.00**	3-Way............	10	5	10	20	7
4964	**459.00**	4-Way............	5	2	2	10	4
4965	**222.00**	D.P. Indicating...	20	10	2	10	4
4966	**192.50**	S.P. Quadruple Break, Indicating......	20	20	10	20	8

Flush Tumbler Lock Switches

With Brown Bakelite Bosses

One No. 6000 is furnished with each lock switch.

4961-L	**$219.50**	S.P. Indicating.	10	5	10	50	20
4962-L	**287.00**	D.P. Indicating.	10	10	2	10	4
4963-L	**252.00**	3-Way............	10	5	10	20	8
4964-L	**559.00**	4-Way............	5	2	2	10	4

Nos. 4961, 4962, 4963 and 4964 available with ivory momentary contact and steel handle features at extra cost.

Bryant A.C. Quiet Switches

For Commercial and Industrial Use

20 Amperes, 277 Volts

Listed by Underwriters' Laboratories

No. 4901

No. 4903

The 277-volt rating permits use on 4-wire 480/277 volt systems.

Silver contacts and construction.

Fully enclosed in strong black plastic housing.

Takes up to No. 10 wire.

Full screw-clamp type of fastening.

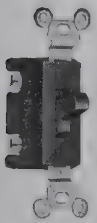
Wire stripping gage in base.

No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
4901	**$203.00**	Single Pole, Brown Handle	10	30	6
4901-I	**215.00**	Single Pole, Ivory Handle	10	30	6
4903	**234.00**	3-Way, Brown Handle	2	10	2
4903-I	**246.00**	3-Way, Ivory Handle	2	10	2

Bryant A.C. Quiet Flush Tumbler Switches

15 Amperes, 277 Volts

Listed by Underwriters' Laboratories



No. 4801

No. 4803

For installation where minimum switch noise is desirable.

Fine silver contacts to insure long life. Totally enclosed mechanism. Plastic housing.

Large head terminal screws for solid or stranded wire up to No. 10.

Screw clamp terminals for easy wiring.

Wire stripping gage on back.

No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
4801	**$127.00**	Single Pole, Brown	10	50	7
4801-I	**131.00**	Single Pole, Ivory	10	50	7
4803	**187.00**	3-Way, Brown	10	20	3
4803-I	**191.00**	3-Way, Ivory	10	20	3

Bryant Flush Tumbler Switches

Shallow—$1\frac{15}{32}$ Inches Deep

T-Rated at 20 Amperes, 125 Volts—20 Amperes, 250 Volts

Listed by Underwriters' Laboratories

No. 5861

No. 5862

No. 5863

Bakelite casing with extra thick walls. Conforms with federal specifications.

Single-Pole

No.	Per 100	Description	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
5861	**$195.50**	Brown Handle...........	10	30	12
5861-I	**206.00**	Ivory Handle............	10	30	12
5861-L	**292.00**	Lock Type...............	10	30	12
5861-M	**359.50**	Momentary Contact......	10	30	12

Double-Pole

5862	**$222.00**	Brown Handle...........	2	10	4
5862-I	**234.50**	Ivory Handle............	2	10	4
5862-L	**320.50**	Lock Type...............	2	10	4
5862-M	**390.00**	Momentary Contact......	2	10	4

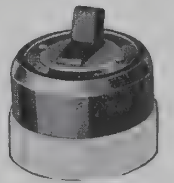
Three-Way

5863	**$220.50**	Brown Handle...........	2	10	4
5863-I	**232.50**	Ivory Handle............	2	10	4
5863-L	**320.50**	Lock Type...............	2	10	4
5863-M	**390.00**	Momentary Contact......	2	10	4

Bryant Surface Tumbler Switches

Surface Mounting Type—Deep Bakelite Cover

Listed by Underwriters' Laboratories



No. 3921

Has solid 2-inch base.

Height over cover, $1\frac{7}{16}$ inches. Screw spacing, $1\frac{3}{8}$ inches.

Packed 10 in a carton, 100 in a standard package.

6 Amperes, 125 Volts—3 Amperes, 250 Volts

No.	Per 100	Description	Wt. Lb. Std. Pkg.
3921	**$78.00**	Single-Pole........................	24

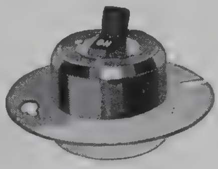
5 Amperes, 125 Volts—2 Amperes, 250 Volts

3923	**102.50**	3-Way..............................	25

Bryant Surface Tumbler Switches

Box Mounting Type—Metal Box Covers

Listed by Underwriters' Laboratories



No. 3931

Deep bakelite switch cover.

Packed 5 in a carton, 50 in a standard package.

Single-Pole

6 Amperes, 125 Volts—3 Amperes, 250 Volts

No....................................	**3931**	**3941**
Per 100..............................	**$107.50**	**113.50**
Size...............................inches	$3\frac{1}{4}$	4
Weight, Standard Package.........pounds	25	30

Three-Pole

5 Amperes, 125 Volts—2 Amperes, 250 Volts

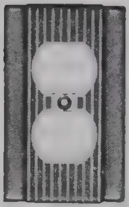
No....................................	**3933**	**3943**
Per 100..............................	**$125.00**	**130.00**
Size...............................inches	$3\frac{1}{4}$	4
Weight, Standard Package.........pounds	25	32

Bryant Flush Plates

Bakelite

Uniline Design—Listed by Underwriters' Laboratories

No. 91071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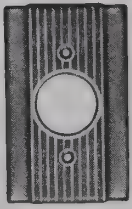
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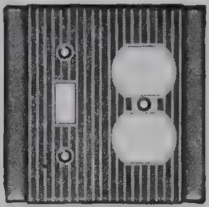
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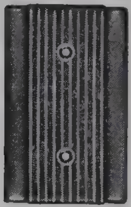
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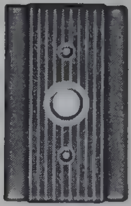
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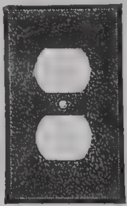
Tumbler Switch Plates

	Brown					Ivory				
No. of Gangs	No.	Per 100	No. in Ctn.	No. in Std. Pkg.	Wt. Lb. Std. Pkg.	No.	Per 100	No. in Ctn.	No. in Std. Pkg.	Wt. Lb. Std. Pkg.
1	91071	$10.50	10	100	8	92071	$14.50	10	50	4
2	91072	21.00	5	50	8	92072	28.50	5	25	4
3	91073	40.50	3	30	8	92073	63.50	3	15	4
4	91074	73.00	3	25	10	92074	93.50	3	15	4
5	91075	160.00	2	20	7	92075	201.00	2	10	4
6	91076	183.00	2	15	7	92076	232.00	2	10	4
Convenience Outlet Plates										
Duplex										
1	91101	$10.50	10	100	7	92101	$14.50	10	50	4
2	91102	57.50	5	25	3	92102	67.50	5	25	4
Single										
1	91091	$17.50	10	100	9	92091	$23.00	10	50	5
Combination Outlet Plates										
Tumbler Switch and Single Outlet										
2	91512	$40.50	2	10	2	92512	$57.50	2	10	2
Tumbler Switch and One Duplex Outlet										
2	91532	$34.50	2	10	2	92532	$46.00	2	10	2
Single and Duplex Outlet										
2	91572	$84.50	2	10	2	92572	$93.50	2	10	2
Two Tumbler Switches and Duplex Outlet										
3	91543	$73.00	2	10	2	92543	$91.50	2	10	2
Three Tumbler Switches and Duplex Outlet										
4	91554	$183.00	2	10	2	92554	$198.00	2	10	2
Push Switches										
1	91081	$17.50	10	100	9	92081	$23.00	10	50	5
Blank Plates										
1	91121	$24.00	10	50	5	92121	$29.00	10	30	3
2	91122	73.00	5	25	5	92122	84.50	5	15	3
Telephone Plates										
1	91181	$23.00	10	50	11	92181	$29.00	10	30	8

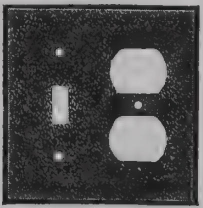
Enameled Finish

Steel, .040 Inch

No. 98071


No. 98101

No. 98091


No. 98532

No. 98121

No. 98181

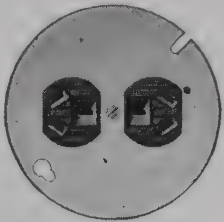
Tumbler Switch Plates

	Brown					Ivory				
1	98071	$13.50	10	100	14	99071	$14.50	10	100	14
2	98072	25.00	5	50	11	99072	29.00	5	50	12
3	98073	38.50	3	30	11	99073	46.00	3	30	12
4	98074	50.00	3	25	12	99074	75.00	3	25	13
5	98075	77.00	2	20	12	99075	106.00	2	20	15
6	98076	90.50	2	15	12	99076	125.00	2	15	13
Convenience Outlet Plates										
Duplex										
1	98101	$13.50	10	100	10	99101	$14.50	10	100	10
2	90102	26.00	5	50	10	99102	29.00	5	50	14
Single										
1	98091	$16.50	10	100	14	99091	$23.00	10	100	14
Combination Outlet Plates										
Tumbler Switch and Single Outlet										
2	98512	$34.50	2	10	2	99512	$43.50	2	10	2
Tumbler Switch and Duplex Outlet										
2	98532	$34.50	2	10	2	99532	$43.50	2	10	3
Two Tumbler Switches and Duplex Outlet										
3	98543	$50.00	2	10	3	99543	$59.50	2	10	3
Blank Plates										
1	98121	$23.00	10	50	9	99121	$26.00	10	50	9
Telephone Plates										
1	98181	$20.00	10	50	7	99181	$23.00	10	50	7

Bryant 3-Wire Grounding Box Mounting Outlets

On 4-Inch Covers

15 Amperes, 125 Volts—10 Amperes, 250 Volts
Listed by Underwriters' Laboratories



Provides terminals for 2 load wires and one terminal for connecting a separate grounding wire. Can also be used for 3-phase 3-wire systems but does not provide separate grounding connections.

Covers finished to resist corrosion.

Packed 5 in a carton, 30 in a standard package.

	For Non-Metallic Systems	For Metallic Systems
No.	4626	4627
Per 100	$252.10	252.10
Weight, Standard Package....pounds	16	17

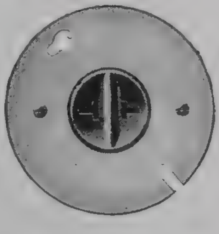
Bryant Outlet Box Receptacles

Brown Bakelite—With T Slots
With Perma Cadmium Finish Metal Covers

15 Amperes, 125 Volts; 10 Amperes, 250 volts Each Outlet

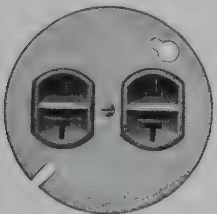
Provided with side-wired brown bakelite receptacles.

Receptacles are also provided with raised ribs which facilitate insertion of caps in the concave surfaces.



Single, Side Wired

No.	3780	4780
Per 100	$49.50	55.50
Size Box....inches	3¼	4
Carton	10	10
Standard Package	50	50
Weight Package.... pound	17	22



No. 3781

Duplex, Side Wired

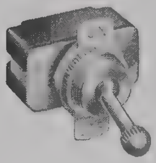
No.	3781	4782
Per 100	$57.50	64.00
Size Box.......in.	3¼	4
Carton	10	10
Std. Package	50	50
Wt. Pkg......lb.	17	21

MATERIAL NOT LISTED

We can furnish many items
not listed in this catalog.
Please send us all your inquiries.

McGill Toggle Switches

6 Amperes, 125 Volts



A small, thin, multiple switch for individual control of lights in Pullman cars, passenger cars and busses, interior lights in automobiles; wall, floor, and table lamps; airplane and trailer lights; as well as power control in appliances, small tools, industrial and office machines, and fractional power motors.

Standard package, 100, carton 10.

No.	Per 100	Description	Wt., Lb. Std. Pkg.
25	$58.00	Single Pole, Wire Leads, T Rating	6
25-L	58.00	Single Pole, Soldering Lugs, T Rating	5
27	76.00	Three-Way, Wire Leads	6
28	84.00	2-Circuit, Wire Leads No Off	6

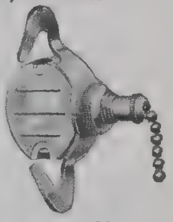
McGill Levolier Switches

Single Circuit—Lever Operated—Thin Model

6 Amperes, T Rating, 125 Volts—3 Amperes, 250 Volts

No. 41

For canopy or conduit box mounting for individual control of incandescent or fluorescent light, f.h.p. motors, etc. Single pole, double break mechanism; with 6-ft. cord or plain lever control.



No. 39

Standard finishes: brass, dark bronze, burnished nickel.

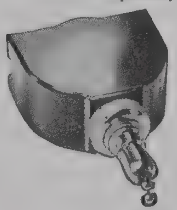
No. **39**, with mounting link, can be used on any chain fixture, and between any two links of chain. When installed in previously hung fixtures, it fits in place of one of chain links without altering length of fixture or requiring rewiring or splicing of lead wires.

No.	Per 100	Stem, Inches: Diameter	Stem, Inches: Length	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
41	$92.00	7/16	3/16	10	100	8
42	98.00	7/16	3/8	10	100	8
43	98.00	7/16	3/4	10	100	8
39	96.00	Link Type		10	100	13½

McGill Levolier Switches

Single Circuit—Lever Operated

Listed by Underwriters' Laboratories
10 Amperes, T Rating, 125 Volts—5 Amperes, 250 Volts



For individual control of high wattage lamps and fluorescent banks up to six 4-tube fixture. Single-pole, double break mechanism with 6-ft. cord and bell.

Made with one-piece molded phenolic casing, easy to wire and install.

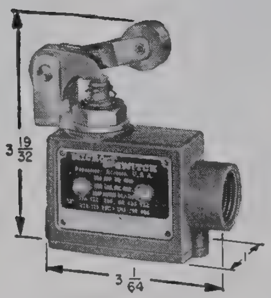
No. **1039**, with mounting link.

No.	Per 100	Stem, Inches: Diameter	Stem, Inches: Length	Carton	Std. Pkg.	Wt., Lb. Std. Pkg.
1010	$160.00	½	3/8	10	100	20
1010-L	166.00	½	5/8	10	100	20
1039	164.00	Link Type		10	100	26

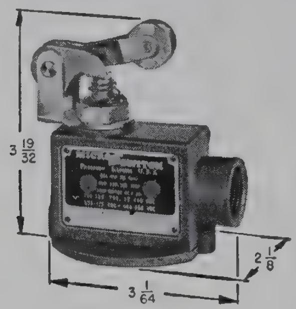
Micro Switch Precision Snap-Action Switches

Die Cast Switch Assemblies

Listed by Underwriters' Laboratories



No. BZE-2RQ2



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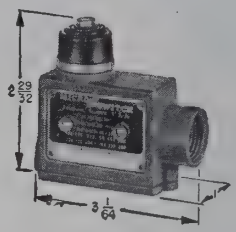

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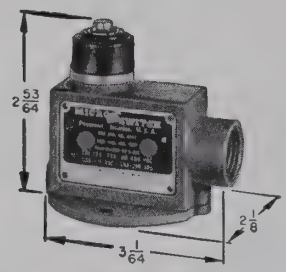

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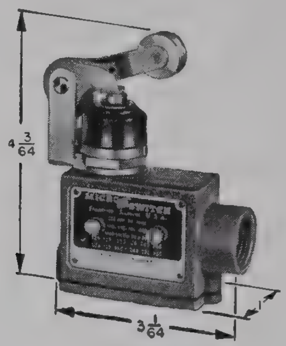

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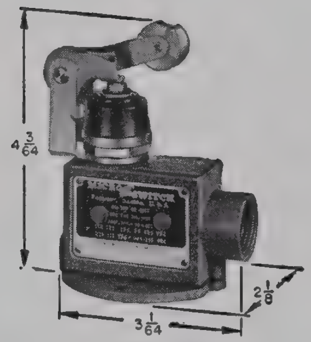
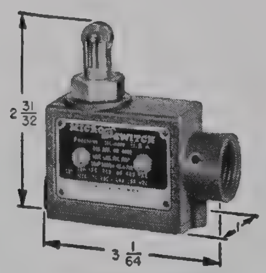
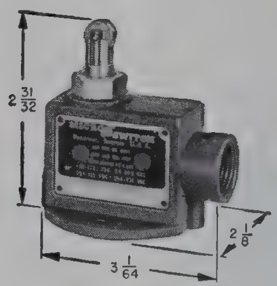


No. BZV-2RN2



No. BZV-2RQ8



No. BZV-2RQ8

Die-cast enclosed switches are single-pole, double-throw switches in rugged die-cast aluminum housings. Available in a variety of actuators and a choice of side mounting or bottom mounting designs. The enclosures provide protection, means of mounting and means of conduit attachment.

Switches with plunger actuators are suited for applications where the actuating motion is in line with plunger motion.

Roller arm actuators are designed for cam or slide actuation. Roller arm is adjustable vertically to any position in intervals of .18 degrees through 225 degrees, and horizontally to any of eight positions in 360 degrees.

Roller plunger actuators are adjustable to two positions whose axes are 90 degrees apart.

Die cast switch assemblies are designed for locations exposed to dirt, dust, and the occasional splash of liquids.

Electrical rating is 15 amperes at 125, 250 or 460 volts, A.C.

No.	BZE-2RQ2	BZV-2RQ2	BZE-2RN	BZV-2RN	BZE-2RN2	BZV-2RN2	BZE-2RQ8	BZV-2RQ8
Operating Force....ounces	10 to 18	10 to 18	9 to 24	9 to 24	10 to 20	10 to 20	9 to 13	9 to 13
Minimum Release Force............ounces	6	6	4	4	6	6	4	4
Maximum Pretravel.inches	9/64	9/64	5/64	5/64	11/64	11/64	1/64	1/64
Minimum Overtravel...in.	1/4	1/4	7/32	7/32	7/32	7/32	9/64	9/64
Maximum Differential Travel............inches	.006	.006	.002	.002	.006	.006	.002	.002

Type B Sangamo Time Switches

30 Amperes, 120 Volts, 60 Cycles, A.C.

Single Pole, Single Throw

Listed by Underwriters' Laboratories

Has a NEMA standard rating of 30 amperes at 120 volts a.c.; single throw. A low speed hysteresis motor operates the service tested timing mechanism and silver contacts.

Four easy setting levers provided for two On and two Off operations daily; trippers also may be stacked for single On and Off operations.

Dial setting is simple, and hand switching does not affect the On and Off function of trippers.

Dead front safety construction; housed in a sturdy all-steel case with hinged cover and sealable hasp; no glass to break.

Almost one-half of the inside space is obstruction-free for speedy wiring, and there are four convenient ½–¾ inch multiple knockouts located in back, bottom and sides.

A single keyhole slot is provided in back of case to make mounting simple.

Overall dimensions: height, 7¼ inches; width, 4¼ inches; depth, 3⅛ inches.

Shipping weight, 2 pounds, 3 ounces.

Type B..each **$13.50**

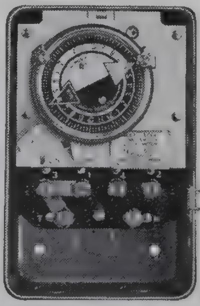
For special, 240-volt motor, 15-amp. rating, add $1.00.

For 50-cycles, add $1.00.

Series 3000 Paragon Time Control Switches

Straight On and Off

30 Amperes; 120, 240 or 24 Volts; 60 Cycles; A.C.
Capacity—3000 Watts
Listed by Underwriters' Laboratories



Industrial type, self-starting motor; shock-proof terminal block. Accurate and dependable for controlling signs, commercial lights, show window lights, stokers, burners, valves, motors and other equipments.

Furnished with two tripper dials as standard. A total of 16 trippers, may be added for additional operations.

Steel case with hasp for padlock and seal and unbreakable door glass. Size, 7⅜x$4\frac{13}{16}$x3¼ inches.

Shipping weight, 3⅜ pounds.

No.	Each	Voltage	Type Switch
3001	**$10.95**	120	S.P.S.T.
3002	**11.95**	240	S.P.S.T.
3003	**12.95**	120	D.P.S.T.
3004	**13.95**	240	D.P.S.T.
3005	**12.95**	120	S.P.D.T.
3006	**13.95**	240	S.P.D.T.
3007	**14.95**	24	S.P.D.T.

For 25 or 50 cycle motors add $1.00.

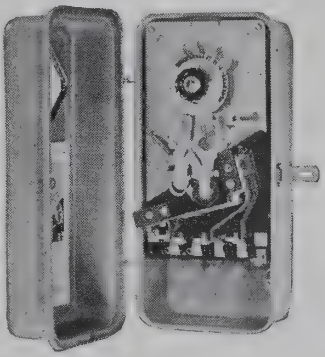
Sangamo Heavy Duty Time Switches

Sangamo hysteresis, high-torque, self-starting, slow-speed 450-rpm. motor, unaffected by extreme temperatures.

Minimum time between off and on periods, 90 minutes. Time interval between on and off periods, 30 minutes. When specified, these time limits can be reversed. Manual tripping at any time without disturbing automatic operation. Basic time switch units can be adapted to a wide range of applications by inclusion of an omitting device, advance time cutoff, astronomic dial and 2-circuit construction. Single and double pole types listed by Underwriters' Laboratories.

Gasket-sealed, dust and rain proof, pressed steel case with hasp. Diamond shaped window, ample wiring space, 4 multiple knockouts. Gray enamel finish.

When ordering specify 120 or 240 volts, 50 or 60-cycles, otherwise 120-volt 60 cycle standard motor is furnished.



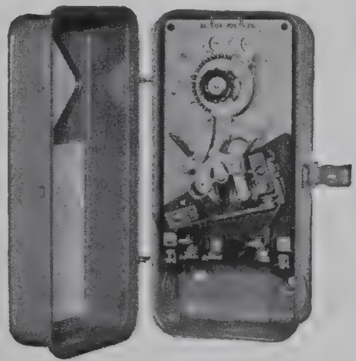
Type L
Synchronous

Solid silver contacts, conservatively rated at 35 amperes per pole on Types 11, 12 and 21. Two pairs of setting levers. Overall: height, 10¼ inches; width, 5¼ inches; depth, 4 inches. Approximate shipping weight, 7 pounds.

Type	Each	Poles	Throw	Amp.
L-11	**$28.10**	Single	Single	35
L-21	**31.00**	Double	Single	35
L-31	**35.00**	Triple	Single	6
L-12	**31.00**	Single	Double	35
L-22	**33.90**	Double	Double	6
L-32	**37.30**	Triple	Double	6

Additional

Type LZ, Std. Astronomic Dial, $14.00; LH, On-Omitting Device, $2.30; LF, Off-Omitting Device, $2.30; LHE Advance Time Device, $7.00; LR, Extra Setting Levers, per pair $.50; LO, Weatherproof Windowless Case $23.00; LG, Reversed Time Limits, no extra charge. Special motors, 25 or 50 Cycle, $1.00; 24 Volt, $1.00; 480 Volt, 60 Cycle, $6.50.



Type W
Synchronous
Carryover

Combines synchronous timing with reserve spring clock operation providing accurate timing during power outages up to 10 hours and eliminates resetting of dial. Positive action thermal-blocking device releases reserve timing movement during service interruptions.

Otherwise, Type L specifications apply.

Type	Each	Poles	Throw	Amp.
W-11	**$50.00**	Single	Single	35
W-21	**52.90**	Double	Single	35
W-31	**56.90**	Triple	Single	6
W-12	**52.90**	Single	Double	35
W-22	**55.70**	Double	Double	6
W-32	**59.20**	Triple	Double	6

Additional

Type WZ, Std. Astronomic Dial, $14.00; WH, On-Omitting Device, $2.30; WF, Off-Omitting Device, $2.30; WHE, Advance Time Device, $7.00; WR, Extra Setting Levers, per pair, $.50; WO, Weatherproof Windowless Case $23.00; WG, Reversed Time Limits, no extra charge. Special motors, 25 or 50 Cycles, $1.00; 24 Volt, $1.00; 480 Volt, 60 Cycle, $6.50.

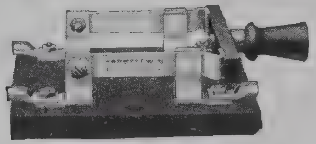
Barkelew Type B Switches

Hinge pressure is maintained with well designed bronze spring washers. Sizes 30, 60, and 100 amperes have riveted hinges; the 200-ampere size is fitted with hinge bolts and nuts to provide for adjustment. Base is of oil finished Monson slate or ebony asbestos.

All copper parts are given a plain dip copper finish and lacquered.

Single Throw—Not Fused—High Jaws

Front Connection—Plain Finish
250 Volts D.C.—500 Volts A.C.

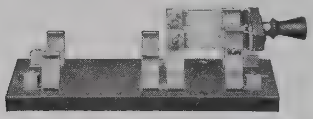


	2 Pole			3 Pole		
Amperes	No.	Each	Weight Pounds	No.	Each	Weight Pounds
*30	3151	$2.00	1¼	3201	$3.15	2½
60	3152	3.70	3	3202	5.35	4¼
100	3154	7.20	5½	3204	11.05	8
200	3155	12.90	10¼	3205	18.40	15½

*For 250-volt only, a.c. and d.c.—low jaws.

Single Throw—Fusible at Bottom—High Jaws

Front Connection—Plain Finish
250 Volts D.C.—250 Volts A.C.



	2 Pole			3 Pole		
Amperes	No.	Each	Weight Pounds	No.	Each	Weight Pounds
30	3171	$3.15	1½	3221	$4.60	3½
60	3172	5.15	3	3222	7.90	6
100	3174	11.05	8¾	3224	16.55	13½
200	3175	18.40	16	3225	28.00	24

For unmounted switches, deduct 10 per cent.

BullDog Vacu-Break® Safety Switches

Master Line

Single Throw—Not Fusible—*Cover Interlock

3 Pole, 240 Volts, A.C. or 600 Volts, A.C.

Cable terminals are BullDog pressure type wire connectors.

Standard finish is gray.

			Hp. Ratings		
No.	Each	Amp.	240 V., A.C.	600 V., A.C.	Wt. Lb.
NF-351	$15.20	30	7½	20	7
NF-352	28.00	60	15	40	7
NF-353	43.00	100	30	50	22
NF-354	66.00	200	50	50	42
NF-355	150.00	400	..	..	132

*Use is optional.

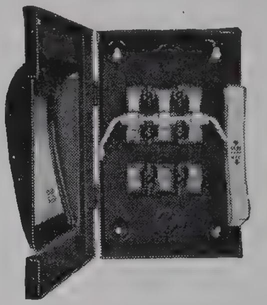
BullDog Electric Products

A Complete Line of Busways
is Available
for Every Application
Complete Information and Engineering Service
will be Furnished upon Request

Bulldog Vacu-Break® Safety Switches

Master Line

Single Throw—Fusible—†Cover-Interlock



Cable terminals are Bull Dog solderless wire grips. Standard finish is gray.

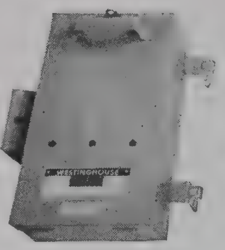
***2 Pole, 2 Blade, 2 Fuse—240 Volts, A.C.; 250 Volts, D.C.**

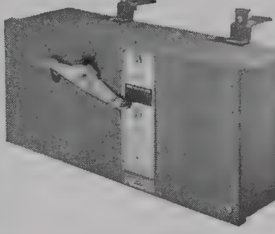
			Horsepower Ratings — 240V., A.C.		250V., D.C.		600V., A.C.		
No.	Each	Amp.	Std.	Maximum	Std.	Maximum	Std.	Maximum	Wt. Lb.
SN-321	$13.70	30	1½	3	5	..	..	..	7
SN-322	25.00	60	3	10	10	..	..	..	12
SN-323	40.00	100	7½	15	20	..	..	..	23
SN-324	72.00	200	15	25	40	..	..	..	43
SN-325	168.00	400	..	..	..	..	..	..	142
SN-326	315.00	600	..	..	..	..	..	..	178
3 Pole, 3 Blade, 3 Fuse—240 Volts, A.C.									
F-321	$16.70	30	3	7½	..	..	..	..	8
F-322	29.00	60	7½	15	..	..	..	..	12
F-323	46.00	100	15	30	..	..	..	..	23
F-324	80.00	200	25	50	..	..	..	..	41
F-325	186.00	400	50	..	..	..	..	..	153
F-326	335.00	600	..	..	..	..	..	..	185
F-327	620.00	800	..	..	..	..	..	..	370
F-328	794.00	1200	..	..	..	..	..	..	381
4 Pole, 4 Blade, 4 Fuse—240 Volts, A.C.									
F-421	$33.00	30	3	10	..	..	..	..	14
F-422	45.00	60	7½	20	..	..	..	..	14
F-423	72.00	100	15	30	..	..	..	..	23
F-424	130.00	200	30	50	..	..	..	..	47
F-425	246.00	400	50	..	..	..	..	..	192
F-426	444.00	600	..	..	..	..	..	..	231
3 Pole, Solid Neutral, 2 Blade, 2 Fuse—120/250 Volts; 240 Volts, A.C.; 3 Phase									
SN-321	$13.70	30	3	7½	..	..	..	..	7
SN-322	25.00	60	7½	15	..	..	..	..	12
SN-323	40.00	100	15	30	..	..	..	..	23
SN-324	72.00	200	25	50	..	..	..	..	43
SN-325	168.00	400	50	..	..	..	..	..	142
SN-326	315.00	500	..	..	..	..	..	..	178
4 Pole, 3 Blade, 3 Fuse—240 Volts, A.C.									
SN-421	$16.70	30	3	7½	..	..	..	..	8
SN-422	29.00	60	7½	15	..	..	..	..	12
SN-423	46.00	100	15	30	..	..	..	..	23
SN-424	80.00	200	25	50	..	..	..	..	44
SN-425	206.00	400	50	..	..	..	..	..	180
SN-426	355.00	600	..	..	..	..	..	..	223
***2 Pole, 2 Blade, 2 Fuse—600 Volts, A.C.**									
F-351	$29.00	30	..	..	..	..	3	10	12
F-352	35.00	60	..	..	..	..	10	25	15
F-353	64.00	100	..	..	..	..	15	40	23
F-354	96.00	200	..	..	..	..	30	..	44
F-355	247.00	300	..	..	..	..	..	..	154
F-356	416.00	600	..	..	..	..	..	..	186
3 Pole, 3 Blade, 3 Fuse—600 Volts, A.C.									
F-351	$29.00	30	..	..	..	..	7½	20	12
F-352	35.00	60	..	..	..	..	15	40	15
F-353	64.00	100	..	..	..	..	30	50	23
F-354	96.00	200	..	..	..	..	50	..	44
F-355	247.00	400	..	..	..	..	..	..	154
F-356	416.00	600	..	..	..	..	..	..	186
F-357	720.00	800	..	..	..	..	..	..	370
F-358	947.00	1200	..	..	..	..	..	..	410

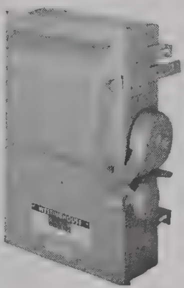
*For 2 pole application, 3 pole switches may be used by wiring two fused poles only and ignoring the third fusible pole.

†Use is optional.

Westinghouse Plug-In Load Protective Units


Type COP Switch


Circuit Breaker


Type TAP Switch

Plug-in units assure complete protection both to the system and to the connected load. May be plugged in at any 12-inch interval throughout the length of the bus duct.

When ordering, specify No., ampere rating, poles and voltage.

Cover-Operated Fusible Switch. Plug-in Type COP. For use where economy, essential utility are most important. Switch blades are fastened to the cover so that switch and cover are always opened together. Has approved hp. ratings up to and including 100 amperes.

Type A Fusible Switch. Plug-in Type TAP. For use on motor circuits and heavy duty industrial circuits. Has quick-make and quick-break action. Cover is interlocked with mechanism and cannot be opened when the switch is in the on-position.

Nofuze "De-Ion" Circuit Breaker. Plug-in Type CBP. De-Ion principle of arc quenching, and bimetal overload protection. On most ratings, combines thermal and magnetic overload protection. Eliminates fuses; flipping the handle restores the circuit.

Cover Operated Fusible Switches—*Plug-in Type COP

	240 Volts A.C. 250 Volts D.C.			240 Volts A.C.						600 Volts A.C.						277/480 Volts A.C.		
	†2-Pole			3-Pole			3-Phase 4-Wire			†2-Pole			3-Pole					
Amp. Cap.	Hp. A.C. D.C.	No.	Each	Hp. D.C.	No.	Each	Hp. A.C.	No.	Each	Hp. A.C.	No.	Each	Hp. A.C.	No.	Each	Hp. A.C.	No.	Each
30	2-5	COP-221B	$30.00	3	COP-321B	$33.00	3	COPN-321B	$41.00	5-0	COP-261B	$32.00	7½	COP-361B	$35.00	5	COPN-361	$43.00
60	5-10	COP-222B	32.00	7½	COP-322B	36.00	7½	COPN-322B	44.00	7½-0	COP-262B	34.00	15	COP-362B	38.00	15	COPN-362	46.00
100	10-15	COP-223B	44.00	15	COP-323B	48.00	15	COPN-323B	56.00	§	COP-263B	46.00	§	COP-363B	52.00	§	COPN-363	60.00
200	.....	COP-224B	111.00	....	COP-324B	122.00	....	COPN-324B	138.00	§	COP-264B	118.00	§	COP-364B	134.00	§	COPN-364	150.00

Type A Fusible Switch—*Plug-In Type TAP

30	2-5	TAP-221B	$42.00	3	TAP-321B	$46.00	3	TAPN-321B	$54.00	5-7½	TAP-261B	$44.00	7½	TAP-361B	$48.00	5	TAPN-361	$56.00
60	5-10	TAP-222B	48.00	7½	TAP-322B	53.00	7½	TAPN-322B	61.00	10-15	TAP-262B	50.00	20	TAP-362B	56.00	15	TAPN-362	64.00
100	7½-15	TAP-223B	70.00	7½	TAP-323B	78.00	7½	TAPN-323B	86.00	15-25	TAP-263B	74.00	30	TAP-363B	82.00	25	TAPN-363	90.00
200	15-30	TAP-224B	126.00	30	TAP-324B	139.00	30	TAPN-324B	155.00	30-50	TAP-264B	138.00	50	TAP-346B	146.00	50	TAPN-364	162.00
400	30-50§	TAP-225B	260.00	50§	TAP-325B	286.00	50§	TAPN-325B	312.00	§	TAP-265B	274.00	§	TAP-365B	300.00	§	TAPN-365	326.00
*600	§	TAP-226B	338.00	§	TAP-326B	372.00	§	TAPN-326B	398.00	§	TAP-266B	358.00	§	TAP-366B	391.00	§	TAPN-366	417.00

Nofuze De-Ion Circuit Breakers—Plug-In Type CBP

Brk. Frame Size	Amp. Capacity	240 Volts, A.C. 125/250 Volts, D.C. 2-Pole No.	Each	‡3-Pole No.	Each	240 Volts, A.C. 3-Phase, 4-Wire No.	Each
E	15	CBP-21015B	$54.00	CBP-31015B	$68.00	CBPN-31015B	$76.00
	20	CBP-21020B	54.00	CBP-31020B	68.00	CBPN-31020B	76.00
	30	CBP-21030B	54.00	CBP-31030B	68.00	CBPN-31030B	76.00
	40	CBP-21040B	54.00	CBP-31040B	68.00	CBPN-31040B	76.00
		600 Volts, A.C. 250 Volts, D.C.		600 Volts, A.C.		277/480 Volts, A.C.	
F	15	CBP-26015B	$86.00	CBP-36015B	$100.00	CBPN-36015C	$110.00
	20	CBP-26020B	86.00	CBP-36020B	100.00	CBPN-36020C	110.00
	30	CBP-26030B	86.00	CBP-36030B	100.00	CBPN-36030C	110.00
	40	CBP-26040B	86.00	CBP-36040B	100.00	CBPN-36040C	110.00
	50	CBP-26050B	86.00	CBP-36050B	100.00	CBPN-36050C	110.00
	70	CBP-26070B	100.00	CBP-36070B	116.00	CBPN-36070C	124.00
	90	CBP-26090B	100.00	CBP-36090B	116.00	CBPN-36090C	124.00
	100	CBP-26100B	100.00	CBP-36100B	116.00	CBPN-36100C	124.00
J	100	CBP-29100	221.00	CBP-39100	262.00	CBPN-39100	275.00
	125	CBP-29125	221.00	CBP-39125	262.00	CBPN-39125	275.00
	150	CBP-29150	221.00	CBP-39150	262.00	CBPN-39150	275.00
	175	CBP-29175	221.00	CBP-39175	262.00	CBPN-39175	275.00
	200	CBP-29200	221.00	CBP-39200	262.00	CBPN-39200	275.00
	225	CBP-29225	221.00	CBP-39225	262.00	CBPN-39225	275.00
K	100	CBP-27100C	258.00	CBP-37100C	308.00	CBPN-37100D	324.00
	125	CBP-27125C	258.00	CBP-37125C	308.00	CBPN-37125D	324.00

Brk. Frame Size	Amp. Capacity	240-Volts, A.C. 125/250 Volts, D.C. 2-Pole No.	Each	3-Pole No.	Each	240 Volts, A.C. 3-Phase, 4-Wire No.	Each
E	50	CBP-21050B	$54.00	CBP-31050B	$68.00	CBPN-31050B	$76.00
	70	CBP-21070	77.00	CBP-31070	91.00	CBPN-31070	100.00
	90	CBP-21090	77.00	CBP-31090	91.00	CBPN-31090	100.00
	100	CBP-21100	77.00	CBP-31190	91.00	CBPN-31100	100.00
		600 Volts, A.C. 250 Volts, D.C.		600 Volts, A.C.		277/480 Volts, A.C.	
K	150	CBP-27150C	$258.00	CBP-37150C	$308.00	CBPN-37150D	$324.00
	175	CBP-27175C	258.00	CBP-37175C	308.00	CBPN-37175D	324.00
	200	CBP-27200C	258.00	CBP-37200C	308.00	CBPN-37200D	324.00
	225	CBP-27225C	258.00	CBP-37225C	308.00	CBPN-37225D	324.00
L	225	‖CBP-28225B	640.00	CBP-38225B	770.00	CBPN-38225C	796.00
	250	‖CBP-28250B	640.00	CBP-38250B	770.00	CBPN-38250C	796.00
	275	‖CBP-28275B	640.00	CBP-38275B	770.00	CBPN-38275C	796.00
	300	‖CBP-28300B	640.00	CBP-38300B	770.00	CBPN-38300C	796.00
	325	‖CBP-28325B	640.00	CBP-38325B	770.00	CBPN-38325C	796.00
	350	‖CBP-28350B	640.00	CBP-38350B	770.00	CBPN-38350C	796.00
	400	‖CBP-28400B	640.00	CBP-38400B	770.00	CBPN-38400C	796.00
	450	‖CBP-28450B	640.00	CBP-38450B	770.00	CBPN-38450C	796.00
	500	‖CBP-28500B	640.00	CBP-38500B	770.00	CBPN-38500C	796.00
	550	‖CBP-28550B	640.00	CBP-38550B	770.00	CBPN-38550C	796.00
	600	‖CBP-28600B	640.00	CBP-38600B	770.00	CBPN-38600C	796.00

When Bolting 2-Pole and 3-Pole L-Frame Breaker Units and 400-Amp. and 600-Amp. Fusible Units to Low Impedance at Section Joints..........add	$34.00
Same as Above Except to 2-Pole and 3-Pole J and K-Frame units and 200-Amp. Fusible Units..........add	23.00
Same as Above except to 2-Pole and 3-Pole F-Frame Breaker Units and 100-Amp. Fusible Units..........add	18.00

For all 3-phase 3-wire units, to be bolted to low impedance duct, add an additional $2.50.

The 30 and 60-ampere fusible and E-frame breaker units not recommended for bolting to low impedance duct.

NOTE: Non-fusible type COP and Type TAP available at 240 or 250-volt prices.

*Not recommended for plug-in service. These units bolt on to bus bars between any two sections of duct. **When ordering,** specify front or rear mounting.

†**Specify** poles desired as follows: AB; BC; CA; AN; BN; CN. Price is the same for any of these combinations. Nos. listed are for CA combination.

‡Three-pole units for use on 1-phase, 3-wire 120/240 volt d.c. systems are same price. Supplied only as ANC where neutral is middle bar of 3-wire duct.

§These units are not listed by Underwriters' Laboratories.

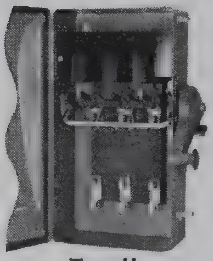
‖Bolt on to bus bars between any two sections of duct.

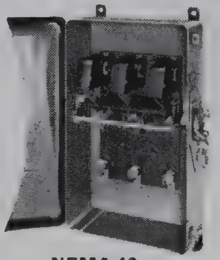
When ordering, it is necessary to specify front or rear mounting. These units can be furnished with plug-in stabs up to and including 400 amperes, but are not listed by Underwriters' Laboratories.

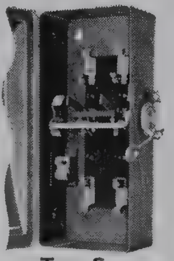
Westinghouse Safety Switches

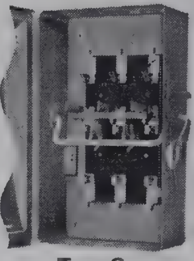
Single Throw

Listed by Underwriters' Laboratories


Type H


NEMA 12


Type S


Type G

Designed principally for the control and protection of motor or feeder circuits and as disconnects. All switches except the double throw switches are suitable for use as service entrance equipment.

Type H: Has a quick-make, quick-break mechanism and an interlocked cover which cannot be opened by unauthorized personnel when the switch is in the On position. Copper parts are tin plated to prevent corrosion and oxidation.

NEMA 12: Designed for use in special industry applications where unusually severe conditions involving oil, coolant, lint, dust and other foreign material exist in the operating atmosphere. The enclosure is designed in conformance with JIC specifications. This enclosure incorporates a neoprene gasketed door and a handle operating mechanism which may be padlocked in either the On or Off position.

Type S: Has a quick-make mechanism and cover interlock along with conventional spring mechanism located inside enclosure. Copper parts are tin plated to prevent corrosion and oxidation.

Type G: Has a slow make-quick break mechanism. No cover interlock provided. Designed for light duty main entrance work and lighting circuits. Not recommended for use on inductive circuits.

Special Features

Diamond Pointed Break Jaw and Extended Blade. Arcing occurs outside contact area keeping parts clean to assure longer life.

De-Ion Arc Quenchers extinguish arcs efficiently, saving contacts. Used on 600 volt switches.

Minimum Heat Loss: One piece copper construction. Spring steel fuse jaw reinforcement.

Composition Base: High grade asbestos composition base affords excellent dielectric strength and mechanical ruggedness.

Sheet Steel Enclosures: NEMA Type 1A dust resisting is provided on all type H switches. NEMA Type 1 sheet steel enclosures provided on all other switches. All switches have medium light gray enamel finish and all except the 800 and 1200 amp. switch enclosures are bonderized.

	Type H					NEMA 12			Type S					Type G		
			Hp.		Ship. Wt.			Ship. Wt.			Hp.		Ship. Wt.			Ship. Wt.
Amp.	No.	Each	A.C.	D.C.	Lb.	No.	Each	Lb.	No.	Each	A.C.	D.C.	Lb.	No.	Each	Lb.
Fusible																
2-Pole, 240 Volt, A.C., 250 Volt, D.C.																
30	AHF-221	$24.50	1½	5	16	JHF-221	$27.00	10	CAF-221	$13.70	1½	5	10	DF-221	$5.60	5
60	AHF-222	33.00	3	10	18	JHF-222	36.00	14	CAF-222	25.00	3	10	14	DF-222	12.50	13
100	AHF-223	50.00	7½	20	34	JHF-223	55.00	30	CAF-223	40.00	7½	20	30	DF-223	27.00	27
200	AHF-224	83.00	15	40	45	JHF-224	91.00	44	CAF-224	72.00	15	40	44	DF-224	50.00	50
400	AHF-225	187.00	30	50	190	....	......	..	CAF-225	148.00	30	50	150	DF-225	120.00	150
600	AHF-226	326.00	....	..	268	....	......	..	CAF-226	295.00	....	..	230	DF-226	260.00	230
800	AHF-227	457.00	....	..	448	....	......	..	....	......	....	..	...	....	......	...
1200	AHF-228	632.00	....	..	495	....	......	..	....	......	....	..	...	....	......	...
3-Pole, 240 Volt, A.C.																
30	AHF-321	30.00	3	..	17	JHF-321	33.00	11	CAF-321	16.70	3	..	11	DF-321	11.00	10
60	AHF-322	43.00	7½	..	19	JHF-322	47.00	15	CAF-322	29.00	7½	..	15	DF-322	17.50	14
100	AHF-323	66.00	15	..	45	JHF-323	73.00	40	CAF-323	46.00	15	..	40	DF-323	32.00	40
200	AHF-324	99.00	25	..	60	JHF-324	109.00	58	CAF-324	80.00	25	..	58	DF-324	68.00	65
400	AHF-325	220.00	50	..	210	....	......	..	CAF-325	186.00	50	..	164	DF-325	150.00	264
600	AHF-326	366.00	....	..	266	....	......	..	CAF-326	335.00	....	..	285	DF-326	300.00	285
800	AHF-327	620.00	....	..	450	....	......	..	....	......	....	..	...	....	......	...
1200	AHF-328	794.00	....	..	510	....	......	..	....	......	....	..	...	....	......	...
4-Pole, 240 Volts, A.C.																
30	AHF-421	43.00	3	..	24	....	......	..	CAF-421	$33.00	3	..	13	DF-421	$16.00	15
60	AHF-422	53.00	7½	..	28	....	......	..	CAF-421	45.00	7½	..	18	DF-422	29.00	19
100	AHF-423	87.00	15	..	50	....	......	..	CAF-423	72.00	15	..	45	DF-423	69.00	44
200	AHF-424	153.00	30	..	62	....	......	..	CAF-424	130.00	30	..	64	DF-424	115.00	75
400	AHF-425	292.00	50	..	310	....	......	..	CAF-425	246.00	50	..	235	DF-425	205.00	235
600	AHF-426	504.00	....	..	315	....	......	..	CAF-426	444.00	....	..	305	DF-426	409.00	305
Non-Fusible																
2-Pole, 240 Volt, A.C., 250 Volt, D.C.																
30	AHU-221	$23.00	3	5	16	....	......	..	Use 3 Pole Type CAU Switches					DU-221	$5.60	5
60	AHU-222	30.00	7½	10	16	....	......	..						DU-222	12.50	11
100	AHU-223	49.00	15	15	28	....	......	..						DU-223	27.00	24
200	AHU-224	70.00	25	30	36	....	......	..						DU-224	50.00	30
400	AHU-225	160.00	50	50	123	....	......	..						DU-225	120.00	123
600	AHU-226	270.00	....	..	151	....	......	..						DU-226	230.00	151
800	Use 600 Volt Switches		....	..	...	....	......	..						....	......	...
1200			....	..	...	....	......	..						....	......	...
3-Pole, 240 Volt, A.C.																
30	AHU-321	$28.00	5	..	16	....	......	..	CAU-321	$15.20	5	..	10	DU-321	$5.60	8
60	Use 600 Volt Switches		....	..	...	....	......	..	CAU-322	28.00	10	..	12	DU-322	12.50	11
100			....	..	...	....	......	..	CAU-323	43.00	20	..	30	DU-323	27.00	31
200			....	..	...	....	......	..	CAU-324	66.00	40	..	38	DU-324	50.00	35
400			....	..	...	....	......	..	CAU-325	150.00	50	..	165	DU-325	120.00	165
600			....	..	...	....	......	..	CAU-326	265.00	....	..	285	DU-326	230.00	285
4-Pole, 240 Volt, A.C.																
30	....	......	....	..	...	....	......	..	CAU-421	$32.00	5	..	10	DU-421	$13.50	10
60	Use 600 Volt Switches		....	..	...	....	......	..	CAU-422	37.00	25	..	14	DU-422	27.00	18
100			....	..	...	....	......	..	CAU-423	70.00	25	..	35	DU-423	65.00	35
200			....	..	...	....	......	..	CAU-424	123.00	50	..	50	DU-424	107.00	50
400			....	..	...	....	......	..	CAU-425	211.00	50	..	234	DU-425	183.00	234
600			....	..	...	....	......	..	CAU-426	400.00	....	..	302	DU-426	365.00	302

Westinghouse Safety Switches

Single Throw

Listed by Underwriter's Laboratories

Fusible

2-Pole, 600 Volts, A.C. or D.C.

	Hp.			Type H			NEMA 12			Type S		
	A.C.		D.C.									
Amp.	240 V.	600 V.	600 V.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	..	3	10	AHF-261	$41.00	17	JHF-261	$45.00	21	Use 3 Pole CAF Listed		
60	..	10	25	AHF-262	43.00	22	JHF-262	47.00	21			
100	..	15	40	AHF-263	66.00	41	JHF-263	73.00	49			
200	..	30	50	AHF-264	99.00	50	JHF-264	109.00	65			
400	..	..	..	AHF-265	229.00	202	....	......	..			
600	..	..	..	AHF-266	362.00	340	....	......	..			
800	..	..	..	AHF-267	560.00	380	....	......	..			
1200	..	..	..	AHF-268	788.00	420	....	......	..			

3-Pole, 600 Volts, A.C.

Amp.	240 V.	600 V.	600 V.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	..	7½	..	AHF-351	$47.00	24	JHF-351	$52.00	21	CAF-351	$29.00	21
60	..	15	..	AHF-352	50.00	25	JHF-352	55.00	21	CAF-352	35.00	21
100	..	30	..	AHF-353	76.00	50	JHF-353	84.00	49	CAF-353	64.00	49
200	..	50	..	AHF-354	123.00	70	JHF-354	135.00	65	CAF-354	96.00	65
400	..	..	..	AHF-355	247.00	230	....	......	..	....	......	..
600	..	..	..	AHF-356	416.00	295	....	......	..	....	......	..
800	..	..	..	AHF-357	720.00	440	....	......	..	....	......	..
1200	..	..	..	AHF-358	942.00	563	....	......	..	....	......	..

4-Pole, 600 Volts, A.C.

Amp.	240 V.	600 V.	600 V.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	..	10	..	AHF-451	$59.00	30	....	......	..	CAF-451	$47.00	26
60	..	20	..	AHF-452	64.00	32	....	......	..	CAF-452	55.00	28
100	..	30	..	AHF-453	100.00	71	....	......	..	CAF-453	94.00	65
200	..	50	..	AHF-454	169.00	101	....	......	..	CAF-454	156.00	95
400	..	..	..	AHF-455	322.00	200	....	......	..	....	......	..
600	..	..	..	AHF-456	524.00	415	....	......	..	....	......	..

Non-Fusible

2-Pole, 600 Volts, A.C. or D.C.

Amp.	240 V.	600 V.	600 V.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	..	15	7½	AHU-261	$28.00	17	JHU-261	$31.00	19	Use 3 Pole CAU Listed Below		
60	..	30	15	AHU-262	36.00	18	JHU-262	40.00	22			
100	..	40	25	AHU-263	59.00	30	JHU-263	65.00	38			
200	..	50	50	AHU-264	76.00	40	JHU-264	84.00	48			
400	..	..	..	AHU-265	187.00	148	....	.....	..			
600	..	..	..	AHU-266	270.00	170	....	.....	..			
800	..	..	..	AHU-267	404.00	280	....	.....	..			
1200	..	..	..	AHU-268	552.00	330	....	.....	..			

3-Pole, 240 Volts, A.C., 600 Volts, A.C.

Amp.	240 V.	600 V.	600 V.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	..	10	..	AHU-351	$33.00	18	JHU-351	$36.00	19	CAU-351	$15.20	19
60	10	25	..	AHU-352	41.00	22	JHU-352	45.00	22	CAU-352	28.00	22
100	20	40	..	AHU-353	61.00	38	JHU-353	67.00	38	CAU-353	43.00	38
200	40	50	..	AHU-354	80.00	48	JHU-354	88.00	48	CAU-354	66.00	48
400	50	..	..	AHU-355	208.00	178	....	.....	..	....	.....	..
600	..	..	..	AHU-356	334.00	230	....	.....	..	....	.....	..
800	..	..	..	AHU-357	540.00	325	....	.....	..	....	.....	..
1200	..	..	..	AHU-358	725.00	352	....	.....	..	....	.....	..

4-Pole, 240 Volts, A.C., 600 Volts, A.C.

Amp.	240 V.	600 V.	600 V.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	5	10	..	AHU-451	$41.00	24	....	.....	..	CAU-451	$34.00	19
60	15	25	..	AHU-452	53.00	26	....	.....	..	CAU-452	47.00	26
100	25	40	..	AHU-453	93.00	42	....	.....	..	CAU-453	87.00	39
200	50	50	..	AHU-454	148.00	66	....	.....	..	CAU-454	126.00	62
400	50	..	..	AHU-455	270.00	163	....	.....	..	....	......	..
600	..	..	..	AHU-456	471.00	225	....	.....	..	....	......	..

Solid-Neutral

3-Pole, *120/240 Volts, A.C., *125/250 Volts, D.C., 240 Volts, A.C.

	Type H				NEMA 12			Type S				Type G		
Amp.	No.	Each	Hp.	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Hp.	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	AHF-321-I	$28.00	3	16	JHF-321-I	$31.00	10	CAF-321-I	$13.70	3	10	DF-321-I	$6.40	7
60	AHF-322-I	37.00	7½	17	JHF-322-I	41.00	14	CAF-322-I	25.00	7½	14	DF-322-I	12.50	13
100	AHF-323-I	59.00	15	36	JHF-323-I	65.00	32	CAF-323-I	40.00	15	32	DF-323-I	27.00	30
200	AHF-324-I	91.00	30	47	JHF-324-I	100.00	46	CAF-324-I	72.00	30	46	DF-324-I	50.00	40
400	AHF-325-I	207.00	50	200	....	......	..	CAF-325-I	168.00	50	172	DF-325-I	140.00	172
600	AHF-326-I	346.00	..	270	....	......	..	CAF-326-I	315.00	..	255	DF-326-I	280.00	255
800	AHF-327-I	499.00	..	440	....	......	..	....	......	..	...	....	......	...
1200	AHF-328-I	706.00	..	500	....	......	..	....	......	..	...	....	......	...

4-Pole, 240 Volts, A.C.

Amp.	No.	Each	Hp.	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.	No.	Each	Hp.	Ship. Wt. Lb.	No.	Each	Ship. Wt. Lb.
30	AHF-421-I	$41.00	3	23	JHF-421-I	$45.00	12	CAF-421-I	$16.70	3	12	DF-421-I	$11.00	13
60	AHF-422-I	50.00	7½	25	JHF-422-I	55.00	16	CAF-422-I	29.00	7½	16	DF-422-I	17.50	18
100	AHF-423-I	79.00	15	44	JHF-423-I	87.00	41	CAF-423-I	46.00	15	41	DF-423-I	32.00	35
200	AHF-424-I	116.00	30	61	JHF-424-I	128.00	58	CAF-424-I	80.00	30	58	DF-424-I	68.00	56
400	AHF-425-I	240.00	50	280	....	......	..	CAF-425-I	206.00	50	225	DF-425-I	170.00	225
600	AHF-426-I	386.00	..	300	....	......	..	CAF-426-I	355.00	..	275	DF-426-I	320.00	275
800	AHF-427-I	895.00	..	440	....	......	..	....	......	..	...	....	......	...
1200	AHF-428-I	1099.00	..	500	....	......	..	....	......	..	...	....	......	...

*Lower voltage is the voltage to ground, unless otherwise noted.

Type A Columbia Surface Steel Cabinets

For surface mounting, as junction, service, switch, panel or cut-out cabinet.

Construction. Of sheet steel, required thickness to conform with Underwriters'.

Finish. Standard finish is high grade baked-on gray enamel. Olive green, aluminum, white enamel or other special finishes at extra charge. For galvanized cabinets, prices on application.

Hardware. Cabinets up to 18-inch width or height regularly equipped with flush ring handle and friction catch; over 18 in. wide, not over 24 in. high, turnknob and latch used. Larger cabinets, all double-door cabinets, with vault handle latch. Unless otherwise specified (*hinged on short side) hinged on long side. Code requirements for double and 3-point catches provided for.

Knockouts. Boxes narrower than 6 inches supplied with ½–¾ inch concentric knockouts only. On 6 to 8-inch widths, one ¾–1 inch knockout in center, one ½–¾ inch knockout each side; 9 to 10 inch width, two ½–¾ inch knockouts each side; same on all sides, 6 to 8, 9 to 10-in. lengths.

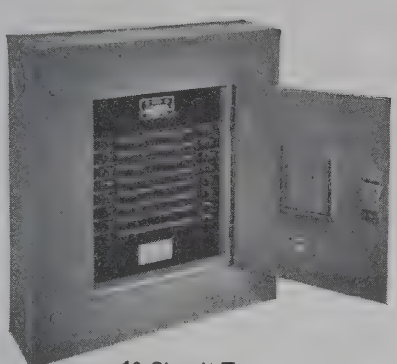
On 10 to 12-inch widths, one ¾–1 inch knockout in center, two ½–¾ inch knockouts each side; 12 to 15-inch lengths, concentric groups of ¾–1 inch knockout with ½–¾ inch knockouts on each side.

On 15-inch widths and up, one each 1¼ and 1-inch knockouts in center; on each side, groups of three consisting of ¾–1 inch knockout in center and ½–¾ inch knockout on each side. Same arrangement on lengths, 18 inches and up, with additional concentric knockouts to fill.

Extra charge added for drilled and tapped holes.

Width, In.	Ht., In.	Depth, Inches 3	4	6	8	10	12
* 4½	5	$1.72	$2.34	.....	.....	.....	.....
* 4½	9	2.00	2.64	.....	.....	.....	.....
6	6	1.88	2.16	$3.76	$4.10	.....	.....
* 6	9	2.30	2.96	4.52	5.08	.....	.....
* 6	10	2.64	3.16	4.82	5.40	.....	.....
* 6	11	2.82	3.40	4.52	5.96	.....	.....
* 6	12	3.00	3.36	5.32	6.12	.....	.....
* 6	16	3.60	4.08	6.00	7.56	.....	.....
* 6	8	2.10	2.64	4.26	4.72	.....	.....
8	8	2.56	3.06	4.60	5.52	.....	.....
8	10	2.94	3.44	5.10	6.32	$7.20	.....
8	12	3.44	4.02	5.80	7.10	8.00	$8.70
8	15	4.02	4.62	6.60	8.20	9.40	10.50
8	18	4.62	5.34	7.20	9.50	10.80	12.00
9	9	2.96	3.78	5.10	6.40	7.50	8.10
9	12	3.66	4.26	6.00	7.60	8.70	8.60
9	15	4.20	4.90	7.00	8.90	10.00	11.20
9	16	4.56	5.04	7.34	9.20	10.50	11.70
9	18	4.86	5.82	7.90	9.90	11.50	12.70
9	20	5.40	6.34	8.50	10.70	12.40	13.70
9	24	6.12	7.10	9.60	12.34	14.40	15.80
9	28	10.90	12.30	15.10	18.70	20.10	23.10
9	32	12.50	13.60	16.80	20.90	23.36	25.72
9	36	13.56	15.20	18.40	23.10	25.80	28.36
10	10	3.56	4.02	5.90	7.20	8.30	9.10
10	12	3.96	4.50	6.50	8.10	9.20	10.50
10	15	4.68	5.22	7.40	9.30	10.70	11.84
10	18	5.34	5.60	8.40	10.60	12.20	13.50
10	20	6.32	7.16	9.30	11.32	12.70	14.10
10	24	7.40	8.30	10.60	13.10	14.60	16.20
10	28	11.96	13.14	16.14	19.88	21.56	24.40
10	32	13.20	14.70	17.94	21.38	24.60	27.20
10	36	14.70	16.24	19.92	24.40	27.20	30.00
12	12	4.90	5.56	7.44	8.80	9.90	11.00
12	16	6.10	6.70	8.90	10.74	12.00	13.24
12	18	6.64	7.10	9.60	11.70	13.00	14.20
12	20	7.12	7.70	10.30	12.60	14.10	15.50
12	24	8.48	9.00	11.76	14.60	16.20	17.80
12	28	13.50	14.88	17.94	22.10	24.40	26.98
12	32	15.06	16.68	19.86	24.60	27.20	29.80
12	36	16.80	18.48	21.90	27.20	30.00	32.80
12	40	18.48	20.14	23.88	28.90	32.80	35.80
16	12	6.10	6.60	8.90	10.76	12.00	13.26
16	32	18.90	20.40	24.00	29.46	32.30	35.00
16	36	21.00	22.74	26.34	30.90	35.60	38.44
16	20	9.06	9.50	12.20	15.30	16.80	18.48
16	24	10.00	10.80	13.60	16.80	18.56	20.30
16	28	16.80	18.36	21.60	26.48	28.96	31.60
16	32	18.90	20.40	24.00	29.46	36.30	35.00
16	36	21.00	22.74	26.34	30.90	35.60	28.44
16	40	21.16	24.96	28.80	35.60	38.80	42.10
18	18	9.20	10.20	12.50	15.30	17.00	18.54
18	20	10.00	11.00	13.40	16.50	18.30	20.00
18	24	16.16	17.76	20.80	25.24	27.90	30.90
18	28	18.48	20.16	23.40	28.60	30.70	34.00
18	32	20.76	22.50	26.00	31.80	34.90	37.76
18	36	23.16	24.90	28.62	35.00	38.40	41.48
18	40	25.50	27.30	31.20	38.40	41.92	44.40
21	21	16.38	18.00	21.00	25.60	28.04	31.36
21	24	18.30	19.92	23.28	27.56	31.00	33.60
21	28	21.00	22.80	26.16	32.00	34.88	37.70
21	32	23.70	25.50	29.46	35.52	38.70	41.72
21	36	$26.28	$26.20	$32.10	$39.10	$42.50	$46.14
21	49	28.98	30.90	35.04	42.76	46.34	49.92
24	24	20.64	22.32	25.68	31.10	34.04	37.00
24	28	23.52	25.38	28.92	35.10	38.28	41.34
24	32	26.52	28.44	32.22	38.92	42.44	45.76
24	36	29.52	31.44	35.52	42.88	46.70	50.24
24	40	32.40	34.44	38.10	47.00	50.80	54.72
24	42	56.60	59.78	66.20	82.90	88.64	95.36
24	48	63.20	68.30	75.62	87.36	90.24	97.50
30	24	33.08	34.88	38.60	45.00	48.30	48.70
30	28	36.56	38.60	42.56	49.92	52.40	56.60
30	32	39.44	42.20	46.52	54.40	55.00	61.76
30	36	68.40	72.20	79.60	87.60	93.00	98.40
30	40	75.80	80.20	86.40	97.20	103.20	109.20
30	44	83.40	88.20	94.80	107.00	113.60	120.20
30	48	91.00	96.20	103.00	116.80	123.80	131.00
30	54	119.80	126.30	139.40	162.20	171.80	181.40
30	60	133.20	140.40	155.00	180.00	190.80	201.00
30	66	142.20	149.60	165.20	192.00	203.60	215.60
30	72	159.80	168.40	185.60	216.00	228.80	241.80
36	36	83.40	88.00	94.60	107.00	114.20	120.20
36	42	112.40	118.60	130.80	152.00	161.20	170.20
36	48	128.00	135.00	148.80	173.00	183.40	193.80
36	54	143.60	151.20	166.80	194.20	205.60	217.40
36	60	159.80	168.60	185.80	216.00	228.80	242.00
36	66	175.70	185.40	204.20	237.50	251.60	266.00
36	72	191.60	202.20	222.60	259.00	274.40	290.00
36	78	207.60	219.00	241.60	281.00	297.60	314.60
36	84	223.40	235.60	259.80	302.00	320.00	328.00
42	42	131.00	138.00	152.40	177.00	187.80	198.40
42	48	149.40	157.60	173.80	202.00	214.20	226.40
42	54	168.00	177.10	195.10	227.00	240.60	254.20
42	60	186.60	196.60	216.40	252.00	267.00	282.00
42	66	204.80	216.00	238.00	277.00	293.60	310.20
42	72	223.40	235.60	259.80	302.00	320.00	338.00
42	78	242.60	255.80	282.00	328.00	348.00	367.60
42	84	261.00	275.00	303.60	353.00	374.00	395.00
42	90	279.60	294.60	325.00	378.00	400.40	423.40
42	96	298.40	314.80	347.00	403.60	427.80	452.00
48	48	171.00	180.20	196.80	230.80	244.60	258.60
48	54	191.60	203.60	222.60	258.80	274.40	290.00
48	60	213.00	224.60	247.60	288.00	305.60	322.40
48	66	234.40	247.00	272.40	316.60	335.60	354.60
48	72	256.00	270.00	297.60	356.00	366.80	387.60
48	78	276.60	291.80	321.60	374.00	396.80	419.20
48	84	298.60	314.80	347.20	403.60	427.40	452.00
48	90	319.00	336.20	372.60	431.00	457.00	483.60
48	96	340.40	358.80	395.60	460.00	487.60	513.60
54	54	215.80	227.60	250.80	292.00	309.40	327.00
54	60	239.60	252.80	278.40	324.00	343.60	363.00
54	66	263.40	277.60	306.00	356.00	367.40	398.80
54	72	287.00	302.40	333.60	388.00	411.40	434.40
54	78	310.80	327.60	361.40	420.00	445.20	470.80
54	84	333.60	351.40	387.00	450.00	477.20	504.20
54	96	377.60	397.80	439.00	510.00	540.40	571.60
60	60	262.80	277.00	305.60	355.00	376.40	397.60
60	66	288.60	304.20	335.60	390.00	413.60	416.40
60	72	318.40	335.60	370.00	430.00	456.00	482.00
60	78	341.60	360.00	397.00	462.40	489.60	516.80
60	84	370.00	390.00	430.00	500.00	530.00	560.00
60	90	396.00	417.00	460.00	517.60	567.60	599.20
60	96	421.60	444.00	490.00	570.00	604.00	638.00

Type NLAB Westinghouse Quicklag AB De-Ion Circuit Breaker Type Lighting Panelboards


16-Circuit Type

Main Breakers: 50 and 100 amperes use E frame; 200 and 225 amperes use J frame.

Space only or provision for future breakers: Figure the panelboard on the basis of the total number of branches including futures and then deduct $2.00 for each single pole breaker omitted.

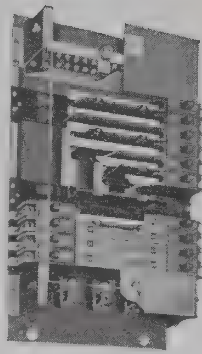
Handle extensions: For each pair of single pole brakers equipped with handle extensions to provide double pole manual operation, add $.50 to price.

Circuit Breakers: 15 ampere, single pole, 120 volt a.c. branch breakers will be furnished unless otherwise specified; 20, 30, 40 and 50 ampere ratings can be furnished at the same price except increased main bus capacity may be required.

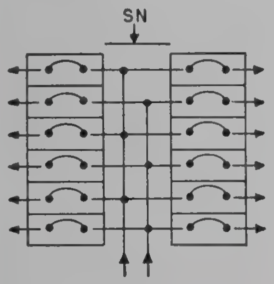
For each 2-pole common trip Quicklag substituted for 2 single pole, add $5.20 to price.

Last two digits in the Cabinet Reference No. indicate box height.

Boxes: 20 inches wide by 5¾ inches deep, 4-inch wiring gutters.



Type NLAB-3—3-Wire Solid Neutral, 120/240 Volts, A.C. Only



Type NLAB-3 Wiring Diagram

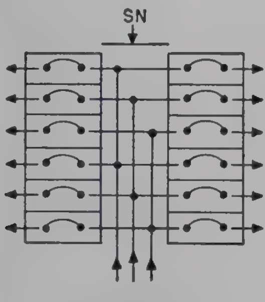
Lugs Only in Mains

No.	Each	No. Poles	Mains Amps.	Mains Wire Range	Cabinet Reference No.	Approx. Ship. Wt. Lb.
NLAB04-3L050	$76.00	4	50	14-6	C17	46
NLAB06-3L050	85.00	6	50	14-6	C19	54
NLAB08-3L050	94.00	8	50	14-6	C19	54
NLAB10-3L050	103.00	10	50	14-6	C22	62
NLAB12-3L100	112.00	12	100	14-1/0	C22	62
NLAB14-3L100	121.00	14	100	14-1/0	C22	64
NLAB16-3L100	130.00	16	100	14-1/0	C22	64
NLAB18-3L100	133.00	18	100	14-1/0	C25	72
NLAB20-3L100	148.00	20	100	14-1/0	C25	72
NLAB22-3L200	157.00	22	200	6-250	C28	83
NLAB24-3L200	166.00	24	200	6-250	C28	83
NLAB26-3L200	175.00	26	200	6-250	C30	91
NLAB28-3L200	184.00	28	200	6-250	C30	91
NLAB30-3L200	193.00	30	200	6-250	C30	93
NLAB32-3L200	202.00	32	200	6-250	C30	93
NLAB34-3L200	211.00	34	200	6-250	C33	101
NLAB36-3L200	220.00	36	200	6-250	C33	101
NLAB38-3L200	229.90	38	200	6-250	C36	110
NLAB40-3L200	238.00	40	200	6-250	C36	110
NLAB42-3L225	247.00	42	225	6-250	C36	112

2-Pole Main Breaker

No.	Each	No. Poles	Mains Amps.	Mains Wire Range	Cabinet Reference No.	Approx. Ship. Wt. Lb.
NLAB04-3AB050	$103.00	4	50	12-2	C22	60
NLAB06-3AB050	112.00	6	50	12-2	C25	67
NLAB08-3AB050	121.00	8	50	12-2	C25	67
NLAB10-3AB050	130.00	10	50	12-2	C28	76
NLAB12-3AB100	157.00	12	100	6-1/0	C28	76
NLAB14-3AB100	166.00	14	100	6-1/0	C28	78
NLAB16-3AB100	175.00	16	100	6-1/0	C28	78
NLAB18-3AB100	184.00	18	100	6-1/0	C30	85
NLAB20-3AB100	193.00	20	100	6-1/0	C30	85
NLAB22-3AB200	331.00	22	200	6-350	C39	115
NLAB24-3AB200	340.00	24	200	6-350	C39	115
NLAB26-3AB200	349.00	26	200	6-350	C41	137
NLAB28-3AB200	358.00	28	200	6-350	C41	137
NLAB30-3AB200	367.00	30	200	6-350	C41	139
NLAB32-3AB200	376.00	32	200	6-350	C41	139
NLAB34-3AB200	385.00	34	200	6-350	C44	146
NLAB36-3AB200	394.00	36	200	6-350	C44	146
NLAB38-3AB200	403.00	38	200	6-350	C47	153
NLAB40-3AB200	412.00	40	200	6-350	C47	153
NLAB42-3AB225	421.00	42	225	6-350	C47	155

Type NLAB-4—4-Wire Solid Neutral, 3-Phase, 120/208 Volts



Type NLAB-4 Wiring Diagram

Lugs Only in Mains

NLAB06-4L050	$95.00	6	50	14-6	C19	55
NLAB08-4L050	104.00	8	50	14-6	C19	55
NLAB10-4L050	113.00	10	50	14-6	C22	63
NLAB12-4L050	122.00	12	50	14-6	C22	63
NLAB14-4L050	131.00	14	50	14-6	C22	65
NLAB16-4L100	140.00	16	100	14-1/0	C22	65
NLAB18-4L100	149.00	18	100	14-1/0	C25	73
NLAB20-4L100	158.00	20	100	14-1/0	C25	73
NLAB22-4L100	167.00	22	100	14-1/0	C28	84
NLAB24-4L100	176.00	24	100	14-1/0	C28	84
NLAB26-4L100	185.00	26	100	14-1/0	C30	92
NLAB28-4L100	194.00	28	100	14-1/0	C30	92
NLAB30-4L100	203.00	30	100	14-1/0	C30	95
NLAB32-4L200	212.00	32	200	6-250	C30	95
NLAB34-4L200	221.00	34	200	6-250	C33	103
NLAB36-4L200	230.00	36	200	6-250	C33	103
NLAB38-4L200	239.00	38	200	6-250	C36	112
NLAB40-4L200	248.00	40	200	6-250	C36	112
NLAB42-4L200	257.00	42	200	6-250	C36	114

3-Pole Main Breaker

NLAB06-4AB050	$134.00	6	50	12-2	C25	68
NLAB08-4AB050	143.00	8	50	12-2	C25	68
NLAB10-4AB050	152.00	10	50	12-2	C28	77
NLAB12-4AB050	161.00	12	50	12-2	C28	77
NLAB14-4AB050	170.00	14	50	12-2	C28	79
NLAB16-4AB100	198.00	16	100	6-1/0	C28	79
NLAB18-4AB100	207.00	18	100	6-1/0	C30	86
NLAB20-4AB100	216.00	20	100	6-1/0	C30	86
NLAB22-4AB100	225.00	22	100	6-1/0	C33	94
NLAB24-4AB100	234.00	24	100	6-1/0	C33	94
NLAB26-4AB100	243.00	26	100	6-1/0	C36	102
NLAB28-4AB100	252.00	28	100	6-1/0	C36	102
NLAB30-4AB100	261.00	30	100	6-1/0	C36	104
NLAB32-4AB200	425.00	32	200	6-350	C41	141
NLAB34-4AB200	434.00	34	200	6-350	C44	148
NLAB36-4AB200	443.00	36	200	6-350	C44	148
NLAB38-4AB200	452.00	38	200	6-350	C47	155
NLAB40-4AB200	461.00	40	200	6-350	C47	155
NLAB42-4AB200	470.00	42	200	6-350	C47	157

Type NLAB-AB Combination Panelboards

Panelboards having combinations of one pole Quicklag and two and/or three pole E frame circuit breakers with mains not over 225 amperes (for panels requiring main bus in excess of 225 amperes, figure as Type NDP panels), select panel having required number of Quicklag breakers, including any future spaces, and proper mains and then add for E frame breakers from the following table.

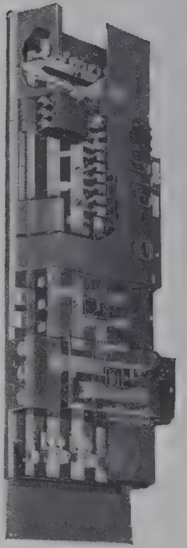
	Breaker		Space Only	
Amperes	2-Pole Each	3-Pole Each	2-Pole Each	3-Pole Each
15, 20, 30, 40, 50........	$26.50	$39.00	$5.00	$7.00
*70, 90, 100............	45.00	58.00	5.00	7.00

*Boxes for panels requiring 70, 90, 100 ampere E frame breakers or space for same will be 6½ inches deep.

Type CDP Westinghouse Convertible AB De-Ion Circuit Breaker Type Distribution Panelboards

Voltages: Up to 600 Volts, A.C.; Up to 250 Volts, D.C.

Mains Capacity: Up to 1200 Amperes, Main Lugs Only; Up to 600 Amperes, Main Breaker



Base Prices

Includes top and bottom gutters with respective sections of bus, and front to circuit edge.

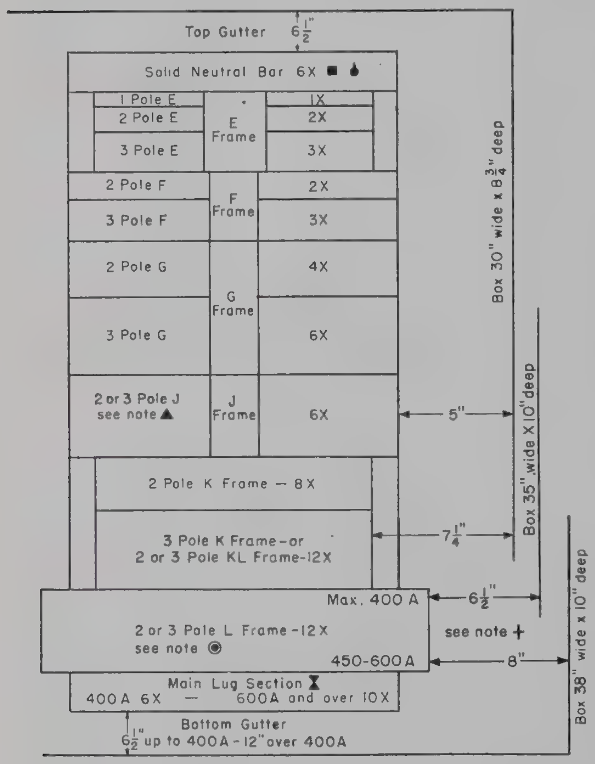
Remaining equipment for complete panelboard is included in branch circuit prices and neutral bar prices, if required.

Use base price once per panel; base price is determined by the largest breaker in the panel, main or branch.

When specified, 1200-ampere mains will be furnished instead of 1000-amp. mains, at same price.

Maximum Breaker Frame in Panel	Capacity of Mains, Amperes				
	225 Each	400 Each	600 Each	800 Each	1000 Each
J Frame, K Frame, KL Frame..........	$80.00	$100.00	$130.00	$160.00	$220.00
L Frame with Single Cable Terminals...	.....	130.00	160.00	193.00	253.00
L Frame with Two Cable Terminals....	.....	151.00	193.00	253.00	321.00

Panel Layout and Box Dimensions


Top Gutter 6½"
Solid Neutral Bar 6X ■ ♦
1 Pole E
2 Pole E
3 Pole E
E Frame
1X
2X
3X
2 Pole F
3 Pole F
F Frame
2X
3X
2 Pole G
3 Pole G
G Frame
4X
6X
2 or 3 Pole J see note ▲
J Frame
6X
2 Pole K Frame — 8X
3 Pole K Frame—or 2 or 3 Pole KL Frame—12X
Max. 400 A
2 or 3 Pole L Frame—12X see note ◉
450-600 A
Main Lug Section ⧗
400 A 6X — 600A and over 10X
Bottom Gutter
6½" up to 400A - 12" over 400A
Box 30" wide x 8¾" deep
Box 35" wide X 10" deep
Box 38" wide x 10" deep
5"
7¼"
6½"
8"
see note +

*Branch Circuit Prices

240 Volts, A.C., 125/250 Volts, D.C.

Trip Rating and Type or Breaker	No. Poles	Branch Breaker Each	Space Only Each	†Provision for Future Breaker Each
‡15-20-30-40 or 50 E Frame	1	$17.00	$5.00	$7.00
	2	34.00	6.00	10.00
	3	48.00	7.00	13.00
‡70-90 or 100 E Frame	2	50.00	6.00	10.00
	3	64.00	7.00	13.00
§50-70-90 or 100 G Frame	2	100.00	12.00	20.00
	3	134.00	17.00	29.00
‡125-150-175-200 or 225 J Frame	2	184.00	12.00	24.00
	3	232.00	17.00	35.00
§125-150-175-200 or 225 K Frame	2	228.00	22.00	36.00
	3	294.00	34.00	55.00
§250-300-350 or 400 KL Frame	2	425.00	34.00	45.00
	3	541.00	34.00	66.00
§250-275-300-325-350-400-450-500-550 or 600 L Frame	2	524.00	34.00	60.00
	3	677.00	34.00	88.00
600 Volts, A.C., 250 Volts, D.C.				
‖15 or 20 E Frame	1	$19.00	$5.00	$9.00
‡15-20-30-40 or 50 F Frame	2	61.00	6.00	10.00
	3	78.00	7.00	13.00
‡70-90 or 100 F Frame	2	74.00	6.00	10.00
	3	92.00	7.00	13.00
§50-70-90 or 100 G Frame	2	100.00	12.00	20.00
	3	134.00	17.00	29.00
‡125-150-175-200 or 225 J Frame	2	184.00	12.00	24.00
	3	232.00	17.00	35.00
§125-150-175-200 or 225 K Frame	2	228.00	22.00	36.00
	3	294.00	34.00	55.00
§250-300-350 or 400 KL Frame	2	425.00	34.00	45.00
	3	541.00	34.00	66.00
§250-275-300-325-350-400-450-500-550 or 600 L Frame	2	524.00	34.00	60.00
	3	677.00	34.00	88.00

*For Panel with Main Breaker, consider main breaker as branch breaker with main lugs and price accordingly.

†Includes connectors and mounting brackets.

‡Non-interchangeable trip.

§Interchangeable trip.

‖Special 1-pole 277 volt E frame breaker for 277/480, 3 phase, 4-wire solid neutral system.

¶Two-Section Panels—Interconnection

Amp. Rating	Solid Neutral Bar Each	Subfeed Lugs			Panel Buses		
		Two Hot Bus Bars Each	Three Hot Bus Bars Each	Solid Neutral Bars Each	Two Hot Bus Bars Each	Three Hot Bus Bars Each	Solid Neutral Bus Each
225	$23.00	$16.00	$22.00	$7.00	.....	......	.....
400	30.00	34.00	40.00	13.00	$75.00	$108.00	$36.00
600	43.00	60.00	67.00	22.00	82.00	117.00	39.00
800	56.00	.....	.....	.....	.....	......	.....
1000	71.00	.....	.....	.....	.....	......	.....

¶Panelboards requiring more than 96X should be ordered and priced as two panels mounted in one box adding for subfeed lugs of proper capacity (not over 600 amperes) in one panel to feed the second panel. When desired, the two panels may be furnished with insulated bus bar connections, pricing such inter-connections from table. Lugs for incoming feeders on such two-section panels will be located in one panel proper and not on the tie bus. Dimensions on request.

15 to 30-Ampere Fusetron Dual-Element Plug Fuses

For Circuit Protection on Voltages up to 125

FUSETRON
T
DUAL-ELEMENT FUSE

Stops needless blowing of plug fuses. Will not blow when motors start on washing machines, refrigerators, etc. Will not blow on motor-starting currents nor on any heavy current which lasts only a short time, because of its thermal element; yet it protects against dangerous overloads or short-circuits just as well as 15-ampere fuse because of its fuse link element.

Abolishes unsafe practice of using over-size fuse to prevent needless blowing. Gives all the protection a fuse does, holds like a large fuse when safety permits, yet opens like a small fuse when safety demands.

Large clear window facilitates locating of blown Fusetron plug fuse.

No installation cost; fits regular fuse receptacle.

Packed 4 in a box, 100 in a shelf package.

Symbol	T15	T20	T25	T30
Each	$.10	.10	.10	.10
Amperes	15	20	25	30

15 to 30-Ampere Buss Fustats

Type S Fuses—For Circuit Protection on Voltages up to 125

BUSS
S
FUSTAT

Fustat

Adapter

Permits addition of more appliances to present circuits. Will not blow out when motors start on washing machines, refrigerators, or other appliances. Fits all Edison base fuse holders by use of adapter which locks in place.

Has a thermal cutout combined with a fuse. Operates like a Fusetron dual-element fuse but has a non-tamperable base. Resists over-fusing. A 20, 25 or 30-ampere size will not fit in a 15-ampere receptacle or adapter. Similar limitations apply to all other sizes.

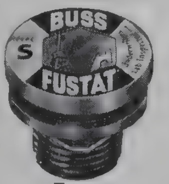
Adapters not included with Fustats. **When ordering,** order separately and specify size.

Packed 4 in a box; 100 in a shelf package.

	Fustats		Adapters	
Amperes	Symbol	Each	Symbol	Each
15	S15	$.15	SA15	$.12
20	S20	.15	SA20	.12
25	S25	.15	SA30	.12
30	S30	.15	SA30	.12

0 to 14-Ampere Buss Fustats

For Motor or Apparatus Protection on Voltages up to 125



Fustat

Adapter

Bussmann's dual-element fuse with tamper-resisting base. It has a fuse link and a thermal cutout. Fits all standard Edison base fuse holders by use of adapter which locks in place.

Holds starting current and harmless overloads, yet protects motor against burnout from any excessive current, even light overloads if continued. Opens like a fuse on short circuit.

Instead of fuse, install in the same block or switch, a Fustat having the same, or slightly higher, ampere rating as the motor. It will protect motor against burnout.

Adapters not included with Fustat; **order** separately, and specify size Fustat for which they are intended.

Packed 4 in a box; 100 in a shelf package.

	Fustats		Adapter	
Amperes	Symbol	Each	Symbol	Each
1.	S 1	$.20	SA 1	$.12
1.25	S 1¼	.20	SA 1¼	.12
1.6	S 1$^{6}/_{10}$	.20	SA 1$^{6}/_{10}$	.12
2.	S 2	.20	SA 2	.12
2.5	S 2½	.20	SA 2½	.12
3.2	S 3$^{2}/_{10}$	.20	SA 3$^{2}/_{10}$	.12
4.	S 4	.20	SA 4	.12
5.	S 5	.20	SA 5	.12
6.25	S 6¼	.20	SA 6¼	.12
8.	S 8	.20	SA 8	.12
10.	S10	.20	SA10	.12
12.	S12	.20	SA15	.12
14.	S14	.20	SA15	.12

Many other sizes from 3/10 to 9 amperes can be obtained

Fusetron Dual-Element Fuses

250 and 600 Volts

Listed by Underwriters' Laboratories

1 to 60 Amperes

FUSETRON
FRN 200

70 to 600 Amperes

Fits ordinary fuse holders. A Fusetron dual-element fuse has a fuse link element to protect against short-circuits and a thermal cut-out element to protect against overloads. It has tremendous time-lag and much less electrical resistance.

For all types of circuits or feeders. Long time-lag prevents blowing on starting currents or other harmless overloads, yet they protect against short-circuit with speed of a fuse.

Low resistance lets switches and panelboards operate at a lower temperature. This prevents damage and wipes out needless blowing of fuses. In cases of heating from poor contact or other causes, the thermal cutout in the Fusetron dual-element fuse will open to protect panelboard or switch against damage.

On normal installations size about 100 to 125 per cent of ampere rating of motor, installed in disconnect switch or branch circuit panel gives safe and dependable motor-running protection. Motors protected by other thermal devices get double protection. If other devices fail, Fusetron dual-element fuses will open to protect against dangerous overload or single phasing. Because Fusetron dual-element fuses can be used in smaller sizes than ordinary fuses, savings on original installations can be made through use of smaller size switches and panelboards.

Approved by Underwriters' Laboratories for both motor-running and circuit protection.

250 Volts				600 Volts				
Symbol and Amp.	Each	Lgth. In.	Wt. Lb. per 100	Symbol and Amp.	Each	Lgth. In.	Wt. Lb. per 100	No. in Carton
FRN 1	$ .33	2	3½	FRS 1	$.83	5	14	10
FRN 1¼	.33	2	3½	FRS 1¼	.83	5	14	10
FRN 1$^{6}/_{10}$	.33	2	3½	FRS 1$^{6}/_{10}$	.83	5	14	10
FRN 2	.33	2	3½	FRS 2	.83	5	14	10
FRN 2½	.33	2	3½	FRS 2½	.83	5	14	10
FRN 3$^{2}/_{10}$	.33	2	3½	FRS 3$^{2}/_{10}$	.83	5	14	10
FRN 4	.33	2	3½	FRS 4	.83	5	14	10
FRN 5	.33	2	3½	FRS 5	.83	5	14	10
FRN 6¼	.33	2	3½	FRS 6¼	.83	5	14	10
FRN 8	.33	2	3½	FRS 8	.83	5	14	10
FRN 10	.33	2	3½	FRS 10	.83	5	14	10
FRN 12	.33	2	5	FRS 12	.83	5	16	10
FRN 15	.33	2	5	FRS 15	.83	5	16	10
FRN 17½	.33	2	5	FRS 17½	.83	5	16	10
FRN 20	.33	2	5	FRS 20	.83	5	16	10
FRN 25	.39	2	5	FRS 25	.94	5	16	10
FRN 30	.39	2	5	FRS 30	.94	5	16	10
FRN 35	.77	3	12	FRS 35	1.65	5½	26	10
FRN 40	.77	3	12	FRS 40	1.65	5½	26	10
FRN 45	.77	3	12	FRS 45	1.65	5½	26	10
FRN 50	.77	3	12	FRS 50	1.65	5½	26	10
FRN 60	.77	3	12	FRS 60	1.65	5½	26	10
FRN 70	1.82	5⅞	35	FRS 70	3.52	7⅞	56	5
FRN 80	1.82	5⅞	35	FRS 80	3.52	7⅞	56	5
FRN 90	1.82	5⅞	35	FRS 90	3.52	7⅞	56	5
FRN100	1.82	5⅞	35	FRS100	3.52	7⅞	56	5
FRN110	3.96	7⅛	88	FRS110	6.88	9⅝	125	1
FRN125	3.96	7⅛	88	FRS125	6.88	9⅝	125	1
FRN150	3.96	7⅛	88	FRS150	6.88	9⅝	125	1
FRN175	3.96	7⅛	88	FRS175	6.88	9⅝	125	1
FRN200	3.96	7⅛	88	FRS200	6.88	9⅝	125	1
FRN225	7.15	8⅝	182	FRS225	13.75	11⅝	305	1
FRN250	7.15	8⅝	182	FRS250	13.75	11⅝	305	1
FRN300	7.15	8⅝	182	FRS300	13.75	11⅝	305	1
FRN350	7.15	8⅝	182	FRS350	13.75	11⅝	305	1
FRN400	7.15	8⅝	182	FRS400	13.75	11⅝	305	1
FRN450	11.00	10⅜	304	FRS450	19.80	13⅜	480	1
FRN500	11.00	10⅜	304	FRS500	19.80	13⅜	480	1
FRN600	11.00	10⅜	304	FRS600	19.80	13⅜	480	1

Other standard dimension Fusetron dual-element fuses are available from 1/10 to 9 amp. and midget dimensions from 1/10 to 10 amp.

Buss Super-Lag Renewable Fuses and Renewal Links

3 to 60 Amperes

70 to 600 Amperes

*8 to 60 Amperes

70 to 200 Amperes

Code (Paragraph 4346) in many cases permits smaller sized fused safety switches, fuse panels or fuse blocks if Buss Super-Lag fuse is used.

One-piece link has long time lag that reduces number of blows on starting currents or other harmless overloads.

250 Volts

Complete Fuses					Renewal Links			
Symbol and Amperes	Each	Length Overall Inches	No. in Ctn.	Weight Pounds per 100	Symbol and Amperes	Each	No. in Ctn.	Weight Pounds per 100
REN3	$.525	2	10	5.5	LKN3	$.026	20	.25
REN6	.525	2	10	5.5	LKN6	.026	20	.25
REN10	.525	2	10	5.5	LKN10	.026	20	.25
REN15	.525	2	10	5.5	LKN15	.026	20	.25
REN20	.525	2	10	5.5	LKN20	.026	20	.25
REN25	.525	2	10	5.5	LKN25	.026	20	.25
REN30	.525	2	10	5.5	LKN30	.026	20	.25
REN35	1.05	3	10	14	LKN35	.053	20	1
REN40	1.05	3	10	14	LKN40	.053	20	1
REN45	1.05	3	10	14	LKN45	.053	20	1
REN50	1.05	3	10	14	LKN50	.053	20	1
REN60	1.05	3	10	14	LKN60	.053	20	1
REN70	2.35	5⅞	5	46	LKN70	.118	10	2
REN80	2.35	5⅞	5	46	LKN80	.118	10	2
REN90	2.35	5⅞	5	46	LKN90	.118	10	2
REN100	2.35	5⅞	5	46	LKN100	.118	10	2
REN110	5.25	7⅛	1	109	LKN110	.263	5	5
REN125	5.25	7⅛	1	109	LKN125	.263	5	5
REN150	5.25	7⅛	1	109	LKN150	.263	5	5
REN175	5.25	7⅛	1	109	LKN175	.263	5	5
REN200	5.25	7⅛	1	109	LKN200	.263	5	5
REN225	9.45	8⅝	1	266	LKN225	.473	5	11
REN250	9.45	8⅝	1	266	LKN250	.473	5	11
REN300	9.45	8⅝	1	266	LKN300	.473	5	11
REN350	9.45	8⅝	1	266	LKN350	.473	5	11
REN400	9.45	8⅝	1	266	LKN400	.473	5	11
REN450	14.44	10⅜	1	389	LKN450	.72	2	16
REN500	14.44	10⅜	1	389	LKN500	.72	2	16
REN600	14.44	10⅜	1	389	LKN600	.72	2	16

600 Volts

Complete Fuses					Renewal Links			
Symbol and Amperes	Each	Length Overall Inches	No. in Ctn.	Weight Pounds per 100	Symbol and Amperes	Each	No. in Ctn.	Wt. Lb. per 100
RES3	$1.31	5	10	18	LKS3	$.066	20	1
RES6	1.31	5	10	18	LKS6	.066	20	1
RES10	1.31	5	10	18	LKS10	.066	20	1
RES15	1.31	5	10	18	LKS15	.066	20	1
RES20	1.31	5	10	18	LKS20	.066	20	1
RES25	1.31	5	10	18	LKS25	.066	20	1
RES30	1.31	5	10	18	LKS30	.066	20	1
RES35	2.10	5½	10	36	LKS35	.105	20	3
RES40	2.10	5½	10	36	LKS40	.105	20	3
RES45	2.10	5½	10	36	LKS45	.105	20	3
RES50	2.10	5½	10	36	LKS50	.105	20	3
RES60	2.10	5½	10	36	LKS60	.105	20	3
RES70	4.73	7⅞	5	83	LKS70	.236	10	5
RES80	4.73	7⅞	5	83	LKS80	.236	10	5
RES90	4.73	7⅞	5	83	LKS90	.236	10	5
RES100	4.73	7⅞	5	83	LKS100	.236	10	5
RES110	9.19	9⅝	1	183	LKS110	.46	5	14
RES125	9.19	9⅝	1	183	LKS125	.46	5	14
RES150	9.19	9⅝	1	183	LKS150	.46	5	14
RES175	9.19	9⅝	1	183	LKS175	.46	5	14
RES200	9.19	9⅝	1	183	LKS200	.46	5	14
RES225	18.38	11⅝	1	373	LKS225	.92	5	29
RES250	18.38	11⅝	1	373	LKS250	.92	5	29
RES300	18.38	11⅝	1	373	LKS300	.92	5	29
RES350	18.38	11⅝	1	373	LKS350	.92	5	29
RES400	18.38	11⅝	1	373	LKS400	.92	5	29
RES450	26.25	13⅜	1	573	LKS450	1.31	2	37
RES500	26.25	13⅜	1	573	LKS500	1.31	2	37
RES600	26.25	13⅜	1	573	LKS600	1.31	2	37

*8-ampere is a special size.

Buss One-Time Fuses

Non-Renewable—250 to 600 Volts

Buss One-Time Fuses are guaranteed, with good contact, to operate perfectly at any overload without charring or burning the fuse case.

Buss One-Time Cartridge Fuses are listed as standard by the Underwriters' Laboratories.

Except for instrument protection, Fusetron fuses should be used instead of ordinary fuses, as they give true and complete protection while their remarkable time-lag prevents useless blows from starting currents, etc.

Ferrule Contact—1 to 60 Amperes

250 Volts					600 Volts				
Symbol and Amperes	Each	Lgth. In.	No. in Ctn.	Wt. Lb. per 100	Symbol and Amperes	Each	Lgth. In.	No. in Ctn.	Wt. Lb. per 100
NON1	$.104	2	10	3.8	NOS1	$.554	5	10	14.5
NON3	.104	2	10	3.8	NOS3	.554	5	10	14.5
NON6	.104	2	10	3.8	NOS6	.554	5	10	14.5
NON10	.104	2	10	3.8	NOS10	.554	5	10	14.5
NON15	.104	2	10	3.8	NOS15	.554	5	10	14.5
NON20	.104	2	10	3.8	NOS20	.554	5	10	14.5
NON25	.104	2	10	3.8	NOS25	.554	5	10	14.5
NON30	.104	2	10	3.8	NOS30	.554	5	10	14.5
NON35	.21	3	10	10.0	NOS35	.83	5½	10	26.0
NON40	.21	3	10	10.0	NOS40	.83	5½	10	26.0
NON45	.21	3	10	10.0	NOS45	.83	5½	10	26.0
NON50	.21	3	10	10.0	NOS50	.83	5½	10	26.0
NON60	.21	3	10	10.0	NOS60	.83	5½	10	26.0

Knife Blade Contact—70 to 600 Amperes

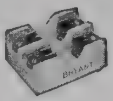
250 Volts					600 Volts				
Symbol and Amperes	Each	Lgth. In.	No. in Ctn.	Wt. Lb. per 100	Symbol and Amperes	Each	Lgth. In.	No. in Ctn.	Wt. Lb. per 100
NON70	$.92	5⅞	5	32	NOS70	$1.85	7⅞	5	56
NON80	.92	5⅞	5	32	NOS80	1.85	7⅞	5	56
NON90	.92	5⅞	5	32	NOS90	1.85	7⅞	5	56
NON100	.92	5⅞	5	32	NOS100	1.85	7⅞	5	56
NON110	2.06	7⅛	1	79	NOS110	3.60	9⅝	1	124
NON125	2.06	7⅛	1	79	NOS125	3.60	9⅝	1	124
NON150	2.06	7⅛	1	79	NOS150	3.60	9⅝	1	124
NON175	2.06	7⅛	1	79	NOS175	3.60	9⅝	1	124
NON200	2.06	7⅛	1	79	NOS200	3.60	9⅝	1	124
NON225	3.73	8⅝	1	165	NOS225	7.23	11⅝	1	303
NON250	3.73	8⅝	1	165	NOS250	7.23	11⅝	1	303
NON300	3.73	8⅝	1	165	NOS300	7.23	11⅝	1	303
NON350	3.73	8⅝	1	165	NOS350	7.23	11⅝	1	303
NON400	3.73	8⅝	1	165	NOS400	7.23	11⅝	1	303
NON450	5.69	10⅜	1	276	NOS450	10.35	13⅜	1	463
NON500	5.69	10⅜	1	276	NOS500	10.35	13⅜	1	463
NON600	5.69	10⅜	1	276	NOS600	10.35	13⅜	1	463

Bryant Cartridge Fuse Cut-Out Bases

Porcelain Base
250 Volts

With connections for one cartridge fuse in each side of the line.

Double-Pole, Main



No. 1917

No.	Per 100	Amps.	Dimensions Inches	Carton	Std. Pkg.	Wt. Lb. Std. Pkg.
1917	$97.00	1-30	$3\frac{5}{16}$x$2\frac{13}{16}$	5	50	40
1918	225.00	31-60	5 x$3\frac{5}{8}$	2	50	117

Double-Pole, Single Branch

No. 1919

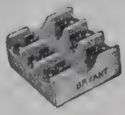
1919	$178.50	1-30	$4\frac{15}{16}$x$2\frac{13}{16}$	1	50	72
1920	341.50	31-60	$6\frac{13}{16}$x$3\frac{5}{8}$	1	50	165

Double-Pole, Double Branch

No. 1922

1922	$297.50	1-30	$7\frac{3}{4}$x$2\frac{13}{16}$	1	25	53
1996	594.50	31-60	$10\frac{5}{8}$x$3\frac{5}{8}$	1	25	117

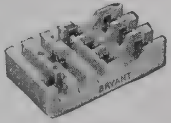
Triple-Pole, Main



No. 1924

1924	$133.50	1-30	$3\frac{5}{16}$x$4\frac{1}{16}$	5	50	63
1925	328.00	31-60	5 x$5\frac{5}{16}$	1	50	155

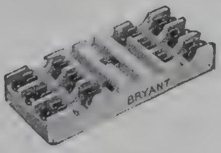
Triple-Pole, Single Branch



No. 1926

1926	$278.00	1-30	$6\frac{1}{16}$x$4\frac{1}{16}$	1	50	125
1927	581.00	31-60	$8\frac{1}{16}$x$5\frac{5}{16}$	1	50	300

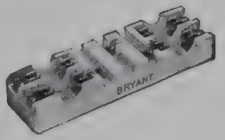
Triple-Pole, Double Branch



No. 1928

1928	$421.00	1-30	$8\frac{7}{8}$x$4\frac{1}{16}$	1	50	198
1998	915.00	31-60	$11\frac{7}{8}$x$5\frac{5}{16}$	1	10	85

Triple to Double-Pole, Double Branch



No. 1923

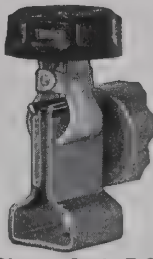
1923	$402.50	1-30	$8\frac{7}{8}$x$2\frac{13}{16}$	1	25	70
1997	819.00	31-60	$11\frac{7}{8}$x$3\frac{5}{8}$	1	25	130

Trico Kliplok Clamps

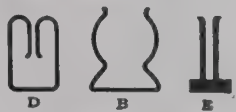
For Fuse Clips

Supplies the needed pressure between fuses and clips. Should be used on all fuses regardless of make.

Eliminates destroying temperatures, premature fuse blowings, damaged clips, charred fuse casings, and wasted kilowatts.



Clamp, Style E Clip



Styles of Clips

Clamp, Style B Clip

For Style B Clips

No.	Each	Size Clip Amp.	Size Clip Volts	Ctn. Qty.	Wt. Lb. Carton
1	$.66	30	250	12	$\frac{5}{8}$
2	.83	60, 30	250, 600	12	1
4	1.04	60	600	12	$1\frac{3}{8}$

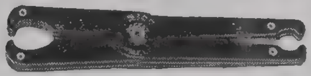
For Style E Clips

5	$.99	100	250, 600	12	$1\frac{1}{8}$
6	1.49	200	250, 600	6	$1\frac{1}{8}$
7	2.14	400	250, 600	6	$1\frac{5}{8}$
8	2.70	600	250, 600	6	$2\frac{1}{4}$

For Style D Clips

4	$1.04	100	250, 600	12	$1\frac{3}{8}$
9	1.81	200	250, 600	6	$1\frac{1}{8}$
10	2.70	400	250, 600	6	2
11	3.61	600	250, 600	6	3

Trico Fuse Pullers



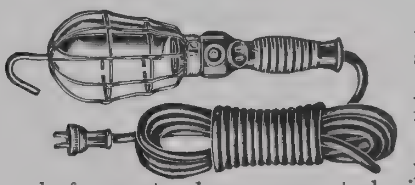
For safely removing fuses, adjusting switches and fuse clips. Made of laminated black horn fiber for extra strength.

Solid grip jaws, at each end of puller fit any size fuse. Tested at 35,000 volts dry.

Sealed edge avoids moisture absorption. Used to adjust switch and fuse clips—handling test tubes, live electrical parts, etc.

Midget Size, for Fuses $\frac{1}{4}$ to $\frac{1}{2}$ Inch in Diameter.each	$.50
Pocket Size, for Fuses 0 to 200 Amps., 250 V.; and 0 to 100 Amps., 600 V........................each	1.24
Giant Size, for Fuses 61 to 600 Amps., 250 V.; and 61 to 400 Amps., 600 V......................each	3.29
Jumbo Size, for Fuses 200 to 800 Amps., 250 V.; and 200 to 600 Amps., 600 V.....................each	9.85

Woods Rocket Extension Lites



For garage, industrial, mill, shop, farm and home use.

Buna rubber shock proof handle with tool-tap side outlet.

Non-glare bulb protector guard made from extra heavy gage steel wire with solid hook. Guard takes up to 100-watt bulb; eliminates glare. Push-thru safety switch is rated at 660-watts and is Underwriter's approved. Heavy brass contact blades for tool-tap outlet. With 18-gage, 2-conductor SJ type .300 o.d. rubber service cable. Spring action molded rubber attachment plug.

No.	101	102	103
Length Cord.....................feet	25	50	100
Std. Pkg...........................	25	20	10
Weight Std. Pkg............pounds	55	65	65

Woods Industrial Extension Sets

For shop, farm and plumbing use.

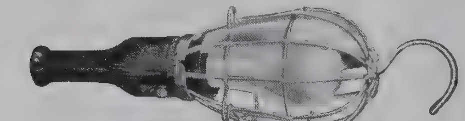
Extra heavy duty 14-gage, 2-conductor approximate S type .420 o.d. flexible all rubber cable complete with cable grip rubber female cord connector and cable grip rubber attachment plug.

No.	212	213	214
Length Cord.....................feet	25	50	100
Std. Pkg...........................	20	20	10
Weight Std. Pkg............pounds	50	70	70

No. 7000 Series McGill Portable Lamp Guards

With Rubber Handles—Closed End Cage

Listed by Underwriters' Laboratories



Black molded rubber handle, equipped with 660-watt, 250-volt socket; comfortable hand grip.

Electrically welded steel wire cage with No-Rol feature, heavily zinc plated, chromate finish.

On grounded models, cage is grounded by means of a grounding bracket which provides a concealed third terminal for contact with ground wire in 3-wire cords; complies with grounded portable lighting as required in modern industrial plants.

Ungrounded

No.	Each	Description	Wt. Oz.
7000	**$2.40**	100-Watt, RS, Keyless Socket.....	19
7000-R	**2.60**	No. 7000 with Reflector...........	22
7000-S	**2.70**	No. 7000 with Levolier Switch.....	19
7000-SR	**2.90**	No. 7000 with Reflector and Levolier Switch................	22
7000-M	**2.30**	50-Watt, RS, Keyless Socket......	18
7000-MR	**2.50**	No. 7000-M with Reflector.........	20
7000-MS	**2.60**	No. 7000-M with Levolier Switch..	17
7000-MSR	**2.80**	No. 7000-M with Reflector and Levolier Switch................	20

Grounded

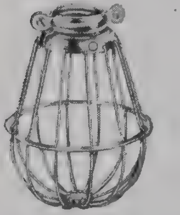
No.	Each	Description	Wt. Oz.
7000-G	**2.60**	100-Watt, RS, Keyless Socket......	20
7000-RG	**2.80**	No. 7000-G with Reflector.........	23
7000-SG	**2.90**	No. 7000-G with Levolier Switch...	20
7000-SRG	**3.10**	No. 7000-G with Reflector and Levolier Switch................	23
7000-MG	**2.50**	50-Watt, RS, Keyless Socket......	19
7000-MRG	**2.70**	No. 7000-MG with Reflector.......	21
7000-MSG	**2.80**	No. 7000-MG with Levolier Switch........................	19
7000-MSRG	**3.00**	No. 7000-MG with Reflector and Levolier Switch................	21

These guards are also available with thumb screws instead of plain collar screws, rubber coated cages and Loxon attachment. All can be furnished complete with any type and length of cord and plug.

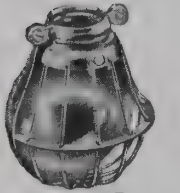
RS—Rough Service.

Rubber watertight sockets can be ordered in place of standard keyless sockets.

McGill Gripon Non-Locking Lamp Guards



No. 2100



No. 2075-R

For regular and mill type lamps. Tinned steel wire with plain steel screws.

Plain Guards

No.	Each	Lamp Size Watts	Fits Socket	Wt. Lb. per Doz.
2075	**$.62**	75	Brass	2½
2075-A	**.62**	75	W.P.	2¾
2075-B	**.62**	75	W.P.	3
2100	**.66**	100	Brass	3
2100-A	**.66**	100	W.P.	3
2100-B	**.66**	100	W.P.	3½
2200	**.80**	200	Brass	4
2200-A	**.80**	200	W.P.	4½
2200-B	**.80**	200	W.P.	4¾

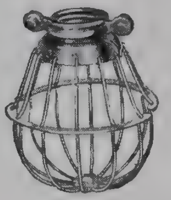
With Reflectors

No.	Each	Lamp Size Watts	Fits Socket	Wt. Lb. per Doz.
2075-R	**$.86**	75	Brass	3½
2075-RA	**.86**	75	W.P.	3¾
2100-R	**.90**	100	Brass	4½
2100-RA	**.90**	100	W.P.	4¾

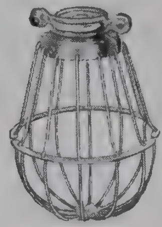
All numbers followed by "A" fit any W.P. Socket with bottom bead measuring 1$\frac{9}{16}$ to 1$\frac{11}{16}$ inches in extreme diameter.

All numbers followed by "B" fit any W.P. Socket with bottom bead measuring 1¾ inches in extreme diameter.

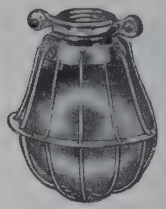
McGill Loxon Locking Lamp Guards



No. 1075



No. 1100



No. 1075-R

Used in garages, factories, yards, shops, basements and closets to secure double protection against breakage and unauthorized removal. Made of steel wire, heavily tinned; available in sizes to fit all sockets and for regular and mill type lamps. Easily attached and locked with key. Three keys are included with each dozen guards. Extra keys are available, $.12 each or $1.30 per dozen.

Plain Guards

No.	Each	Lamp Size Watts	Fits Socket	Wt. Lb. per Doz.	No.	Each	Lamp Size Watts	Fits Socket	Wt. Lb. per Doz.
1075	**$.66**	75	Brass	2½	**1100-B**	**$.70**	100	W.P.	3½
1075-A	**.66**	75	W.P.	2¾	**1200**	**.84**	200	Brass	4
1075-B	**.66**	75	W.P.	3¼	**1200-A**	**.84**	200	W.P.	4½
1100	**.70**	100	Brass	3	**1200-B**	**.84**	200	W.P.	4¾
1100-A	**.70**	100	W.P.	3	....	...	...	......	...

With Reflectors

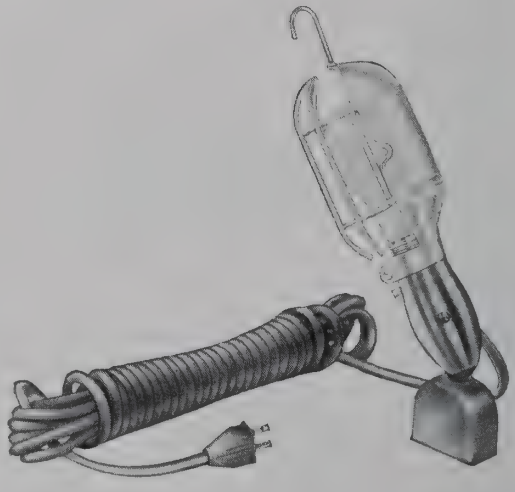
No.	Each	Lamp Size Watts	Fits Socket	Wt. Lb. per Doz.	No.	Each	Lamp Size Watts	Fits Socket	Wt. Lb. per Doz.
1075-R	**$.90**	75	Brass	3½	**1100-R**	**$.94**	100	Brass	4½
1075-RA	**.90**	75	W.P.	3¾	**1100-RA**	**.94**	100	W.P.	4½

All Nos. followed by "A" fit any W.P. Socket with bottom bead measuring 1$\frac{9}{16}$ to 1$\frac{11}{16}$ inches in extreme diam.

All Nos. followed by "B" fit any W.P. Socket with bottom bead measuring 1¾ inches in extreme diameter.

Standard Magic Lite Trouble Lights

Magnetic Base



Puts lights where needed. Neoprene covered, Alnico V, permanent magnetic base holds light firm in any position on any ferrous surface. Completely universal ball swivel joint allows light to be turned easily in all directions.

Guard has full non-glare reflector, swivel hook, and swing open feature for immediate bulb replacement.

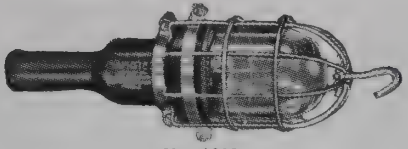
With extra flexible, Underwriters' Laboratories approved rubber covered wire and molded rubber plug.

The 25-foot lights are packed 6, 12 or 24 in a package, the 50-foot lights are packed 6 or 12 in a package.

Without Side Outlet		With Side Outlet				
No.	Each	No.	Each	Type Wire	Lgth. Cord Feet	Approx. Wt.Lb. per Doz.
ML-25-C	**$5.95**	MLSO-25-C	**$6.95**	18/2 SJ	25	48
ML-50-C	**7.15**	MLSO-50-C	**8.30**	18/2 SJ	50	62

Vaprotex Portable Lamps

With Steel Wire Guard



No. 1200

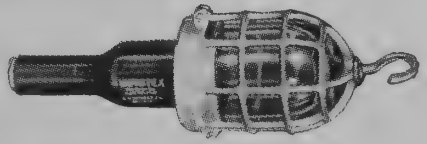
For illumination purposes where gases, dust and other explosives exist. When assembled according to our design they may be used in the most hazardous locations with absolute safety. It is impossible for vapors to enter the glass globe.

Includes Neotex handle, bakelite socket, glass globe and steel wire guard with hook. Standard package, 12.

	Without Stuffing Box in Handle		With Stuffing Box in Handle	
No.	1200	1201	1202	1203
Each	$14.80	16.00	16.60	17.80
Watts	60–75	100	60–75	100
Weight Standard Package..lb.	37	42	40	48

For Neotex covered guard on any of the above numbers add the letter (I) to number and add $5.25 to list price.

With Non-Sparking Aluminum Guards



No. 1206

Includes Neotex handle, bakelite socket, glass globe, and non-sparking aluminum guard with hook.

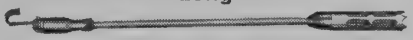
Standard package, 12.

	Without Stuffing Box in Handle		With Stuffing Box in Handle	
No.	1204	1205	1206	1207
Each	$27.95	30.15	29.75	31.95
Watts	60–75	100	60–75	100
Weight Standard Package..lb.	44	48	46	51

When ordering, specify whether ground clip is desired at extra charge of $.50.

Vaprotex Bunghole Lamps

Long



No. 1300

A vaporproof lighting unit for inspecting gasoline, oil, chemical and other drums used for explosives.

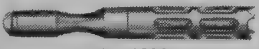
Outside diameter, 1½ inches.

Made of non-sparking metal throughout.

Packed 1 in a standard package.

No.	1300	1303
Each	$34.00	36.00
Watts	15	25
Length....inches	30	32½
Weight Standard Package....pounds	5	5½

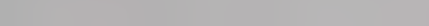
Short



No. 1301

No.	1301	1304
Each	$29.00	31.00
Watts	15	25
Length....inches	12	14½
Weight Standard Package....pounds	3½	3

Protex Bunghole Lamps



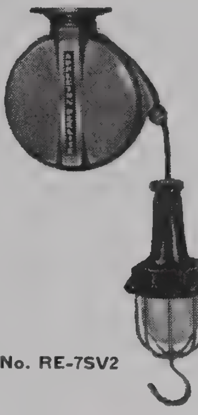
No. 1302

A non-vaporproof unit for inspecting beer, lard, syrup and other barrels used for non-explosive solutions.

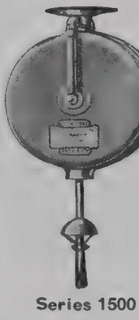
Outside diameter, 1 inch.

No.	1302	1305
Each	$26.00	28.00
Watts	15	25
Length....inches	30	32
Weight Standard Package....pounds	3	4

Appleton Portable Reelites



No. RE-7SV2



Series 1500

An automatic take-up reel for electric wire and cable, portable tools and air hose.

Furnishes flexible power source for electrical devices.

Keeps cord always neatly reeled up out of the way, reducing accident hazard and increasing cord life by preventing kinks or other damage.

Positive stop action holds cord at any desired length.

Hanger plate fits over any 4-inch octagonal outlet box.

No. RE-7SV2. Vaporproof type complete with vaporproof handlamp and 20 feet of 3-conductor cord. One conductor being grounded to frame for added safety.

No. RE-7S2. Continuous swivel action in either direction with out power interruption. Similar construction to No. RE-7SV2.

Series 1500. Semi-swivel action.

Furnished complete with neoprene oil-resistant cord.

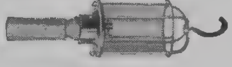
Gray baked enamel finish.

No.	Each	Cord Lgth. Feet	*Cord Type	Reel Diam. In.	Max. Accessory Wt. Lb.	Rating	Wt. Lb.
RE-**1532**	**$13.45**	12	16-2 SJO	5½	2	250 V.-660 W.	5
RE-7S2	**18.85**	25	16-2 SJO	7	1¼	10 A.-250 V.	7
RE-7SV2	**28.25**	20	18-3 SJO	7	1⅞	7 A.-250 V.	10
RE-**1519**	**25.70**	40	16-2 SJO	10	1	250 V.-660 W.	13
RE-**1520**	**27.80**	50	18-2 SJO	10	None	250 V.-660 W.	14

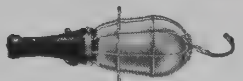
*Reelites listed with 16-2 SJO cord will be supplied at extra cost with 18-3 SJO cord, one conductor grounded to reel frame. To obtain this grounding safety feature, add suffix G to No. †Will not support weight of handlamp.

Accessories

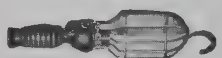
Portable Lamps



No. RE-H1



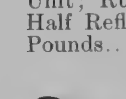
No. RE-H3SR



No. RE-H4S

No. RE-H1, Guard; Wood Handle; Switch; Half Reflector; Maximum Lamp, 100 Watts; Weight, 1¹⁄₁₆ Lb...ea.	**$4.15**
No. RE-H2, Guard; Rubber Handle; Less Switch; Half Reflector; Max. Lamp, 100 Watts; Wt., 1³⁄₁₆ Lb....ea.	2.75
No. R-H2S, Guard; Rubber Handle; Switch; Half Reflector; Max. Lamp, 100 Watts; Wt., 1³⁄₁₆ Lb....ea.	2.95
No. RE-H3SR, Guard; Plastic Handle; Switch; Receptacle; Half Reflector; Maximum Lamp, 100 Watts; Weight, 1⅛ Pounds....each	3.90
No. RE-H4SR, Lighter and Smaller than Standard Unit; Rubber Handle; Switch and Receptacle; Half Reflector; Max. Lamp, 100 Watts; Wt., ⅞ Pounds....each	2.00

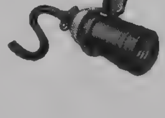
No. RE-CB1 Connector Bodies



Machine tool receptacle connector body. Weight, ¼ pounds.

No. RE-CB1....each **$1.30**

No. RE-KS1 Composition Key Sockets



Maximum lamp, 200 watts.

Weight, ¼ pounds.

No. RE-KS1....each **$1.50**

Allen-Bradley Standard Enclosures

NEMA Standard

NEMA Type 1, General Purpose

Type 1

Designed to meet general specifications for enclosures of Underwriters' Laboratories. Intended primarily to prevent accidental contact with control apparatus. Suitable for general purpose application indoors and where atmospheric conditions are normal. It serves as a protection against dust and light and indirect splashing. It is not dust-tight.

Sheet steel cabinet with glossy grey finish and white interior.

NEMA Type 1A, Semi-Dust-Tight. Similar to Type 1 enclosure, but has gasket around the cover. Suitable for general purpose applications indoors and provides additional protection against dust, although it is not dust-tight.

NEMA Type 3, Weather-Resistant

Type 3

Provides proper protection against weather hazards, such as rain and sleet.

It is suitable for applications outdoors on ship docks, canal locks and construction work, and for applications in subways and tunnels.

The top of this enclosure extends beyond the side and front to form a drip hood.

Screened louvered openings are provided at the top and bottom, and the entire enclosure is finished in a weather-resistant baked enamel.

NEMA Type 4, Watertight

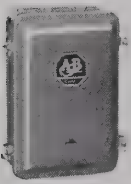
Type 4

The Type 4 enclosure is suitable for application outdoors on ship docks and also in dairies, breweries, etc.

It is made of cast aluminum and has a grey enamel finish.

The cover is sealed with a rubber gasket.

NEMA Type 5, Dust-Tight



Type 5

The Type 5 enclosure is provided with gaskets and special cover fasteners to insure that no dust enters the enclosure.

It is suitable for application in steel mills, cement mills and other locations where it is desirable to exclude dust.

This enclosure should not be used for hazardous dust locations. (For hazardous dust locations, see NEMA Type 9.)

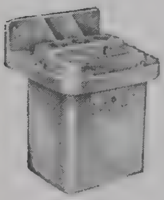
NEMA Type 7, Hazardous Gas Locations

Type 7

The Type 7 enclosure is designed to meet the requirements of the National Electrical Code for Class 1, Group D, hazardous locations, and is designed in accordance with the latest specifications of Underwriters' Laboratories.

The cast iron enclosure has wide machined flanges between the cover and the base.

NEMA Type 8, Corrosive Hazardous Gas Locations



Type 8

Designed to meet application requirements of National Electrical Code for Class 1, Group D, Hazardous Locations. The contacts are immersed in oil.

The cast iron enclosure is cadmium-plated.

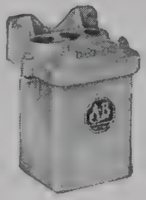
NEMA Type 9, Hazardous Dust Locations

Type 9

Type 9 enclosure is designed to meet the application requirements of the National Electrical Code for Class 2, Groups F and G, Hazardous Locations.

The enclosure is of cast iron with a machined surface seal between the cover and the base.

NEMA Type 11, Corrosion Proof



Type 11

Type 11 enclosure is designed to be both acid and fume-resistant.

It is suitable for applications where the equipment is subject to corrosive acid or fumes, as in chemical plants, plating rooms, sewage plants, etc.

The contacts are immersed in oil in a cadmium-plated steel tank.

NEMA Type 12, Automotive Enclosures

Type 12

The Type 12 enclosure is designed for use in the automotive and other mass-production industries where an enclosure is required to provide more protection against dirt and oil than is provided by the standard NEMA Type 1A enclosure.

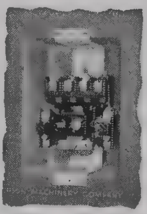
All possible entrances for dirt and oil, such as mounting holes and knock outs, have been eliminated from this enclosure.

The cover has a gasket similar to that of a NEMA Type 1A.

NEMA Type 1B, Flush Mounting

Flush type, similar to Type 1 but for mounting in wall and with cover which also serves as flush plate.

In three different styles:



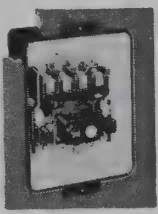
Type 1B1

Type 1B1

Provides for cavity mounting without an enclosure.

Bracket which holds starter can be installed in a machine base.

Illustration shows a typical machine base with recess for receiving Type 1B1 starter.

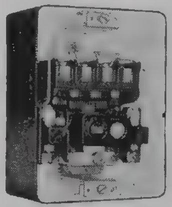


Type 1B2

Type 1B2

Provides enclosure which is equipped with flanges at top and bottom.

These flanges are used for flush mounting in machine frames, as shown in illustration.



Type 1B3

Type 1B3

Suitable for flush mounting in plaster walls.

Starter can be easily aligned in enclosure after enclosure has been placed in wall.

No. 815 Allen-Bradley Manual Reset Overload Relay Heater Element Ratings

Nos. 609, 609RS, 609TS

No. 815 Type A Relays

Type N Heater Elements

Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.
NN4	0.21	N21	4.35
NN3	0.25	N22	4.81
NN2	0.29	N23	5.32
NN1	0.36	N24	5.79
N1	0.46	N25	6.38
N2	0.53	N26	7.10
N3	0.65	N27	7.75
N4	0.81	N28	8.57
N5	0.89	N29	9.38
N6	0.98	N30	10.1
N7	1.08	N31	11.6
N8	1.22	N32	12.4
N9	1.34	N33	14.0
N10	1.45	N34	15.8
N11	1.60	N35	16.8
N12	1.79	N36	17.8
N13	1.94	N37	18.8
N14	2.14	N38	21.2
N15	2.38	N39	23.8
N16	2.66	N40	26.6
N17	3.01	N41	*28.5
N18	3.28	N42	*32
N19	3.55	N43	*36
N20	3.88	N44	*38
......	....	....	.....

No. 709SP

No. 815 Type B Relays

Type N Heater Elements

Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.
NN4	0.20	N21	3.91
NN3	0.23	N22	4.33
NN2	0.27	N23	4.86
NN1	0.34	N24	5.29
N1	0.42	N25	5.84
N2	0.49	N26	6.50
N3	0.60	N27	7.15
N4	0.74	N28	7.89
N5	0.82	N29	8.53
N6	0.90	N30	9.33
N7	0.98	N31	10.8
N8	1.12	N32	11.6
N9	1.23	N33	13.0
N10	1.32	N34	14.8
N11	1.45	N35	15.7
N12	1.63	N36	16.7
N13	1.78	N37	17.9
N14	1.94	N38	19.5
N15	2.17	N39	21.2
N16	2.43	N40	23.9
N17	2.70	N41	*25.3
N18	2.95	N42	*28.5
N19	3.21	N43	*32
N20	3.50	N44	*34
......	....	N45	*37

Nos. 705, 706, 707, 709, 712, 713, 715, 723, 740, 205, 209, 265, 267, 268

No. 815 Type B Relays—Type N Heater Elements

Heater Element Type No.	Motor Full Load, Amps.		Heater Element Type No.	Motor Full Load, Amps.					Heater Element Type No.	Motor Full Load, Amps.		
	Size 0 Switch Rated 2 Hp. 220 3-Hp. 440-550V.	Size 1 Switch Rated 5 Hp. 220 V. 7½ Hp. 440-550 V.		Size 0 Switch Rated 2 Hp. 220 3-Hp. 440-550V.	Size 1 Switch Rated 5 Hp. 220 V. 7½ Hp. 440-550 V.	Size 2 Switch Rated 15 Hp. 220 V. 25 Hp. 440-550 V.	Size 3 Switch Rated 30 Hp. 220 V. 50 Hp. 440-550 V.	Size 4 Switch Rated 50 Hp. 220 V. 100 Hp. 440-550 V.		Size 3 Switch Rated 30 Hp. 220 V. 50 Hp. 440-550 V.	Size 4 Switch Rated 50 Hp. 220 V. 100 Hp. 440-550 V.	Size 5 Switch Rated 100 Hp. 220 V. 200 Hp. 440-550 V.
NN4	0.19	0.19	N22	4.29	4.29	.....	....	....	N47	53	59	...
NN3	0.22	0.22	N23	4.80	4.80	.....	....	....	N48	60	66	...
NN2	0.26	0.26	N24	5.22	5.22	.....	....	....	N49	65	71	82
NN1	0.33	0.33	N25	5.76	5.76	.....	....	....	N50	71	77	89
N1	0.41	0.41	N26	6.41	6.41	.....	....	....	N51	78	84	98
N2	0.48	0.48	N27	7.02	7.02	.....	....	....	N52	85	92	107
N3	0.59	0.59	N28	7.74	7.74	8.23	....	....	N53	91	100	115
N4	0.74	0.74	N29	8.35	8.35	9.08	....	....	N54	....	112	129
N5	0.81	0.81	N30	9.13	9.13	10.0	....	....	N55	....	125	144
N6	0.89	0.89	N31	10.5	10.5	11.7	....	....	N56	....	140	162
N7	0.97	0.97	N32	11.3	11.3	12.5	....	....	N57	....	157	183
N8	1.11	1.11	N33	12.6	12.6	14.2	....	....	N58	....	...	204
N9	1.22	1.22	N34	14.3	14.3	16.3	....	....	N59	....	...	225
N10	1.31	1.31	N35	.....	15.1	17.4	....	....	N60	....	...	247
N11	1.45	1.45	N36	.....	16.1	18.7	....	....	N61	....	...	269
N12	1.62	1.62	N37	.....	17.2	20.1	21.3	....	N62	....	...	283
N13	1.77	1.77	N38	.....	18.9	21.6	22.9	....	....	....	...	...
N14	1.93	1.93	N39	.....	20.7	23.6	25.0	....	....	....	...	...
N15	2.16	2.16	N40	.....	23.3	26.6	28.1	....	....	....	...	...
N16	2.41	2.41	N41	.....	.....	29.1	30.4	....	....	....	...	...
N17	2.68	2.68	N42	.....	.....	33	35	....	....	....	...	...
N18	2.93	2.93	N43	.....	.....	35	37	....	....	....	...	...
N19	3.18	3.18	N44	.....	.....	38	42	46	....	....	...	...
N20	3.47	3.47	N45	.....	.....	42	46	50	....	....	...	...
N21	3.88	3.88	N46	.....	.....	45	49	54	....	....	...	...

Nos. 640, 741, 742, 746

No. 815 Type B Relays—Type N Heater Elements

Heater Element Type No.	Motor Full Load, Amps.			Heater Element Type No.	Motor Full Load, Amps.		
	Size 2 Starter Rated 15 Hp. 220 V. 25 Hp. 440-550 V.	Size 3 Starter Rated 30 Hp. 220 V. 50 Hp. 440-550 V.	Size 4 Starter Rated 50 Hp. 220 V. 100 Hp. 440-550 V.		Size 3 Starter Rated 30 Hp. 220 V. 50Hp. 440-550 V.	Size 4 Starter Rated 50 Hp. 220 V. 100Hp. 440-550 V.	Size 5 Starter Rated 100 Hp. 220 V. 200Hp. 440-550 V.
N28	8.23	....	....	N47	53	59	...
N29	9.08	....	....	N48	60	66	...
N30	10.0	....	....	N49	65	71	82
N31	11.7	....	....	N50	71	77	89
N32	12.5	....	....	N51	78	84	98
N33	14.2	....	....	N52	85	92	107
N34	16.3	....	....	N53	91	100	115
N35	17.4	....	....	N54	..	112	129
N36	18.7	....	....	N55	..	125	144
N37	20.1	21.3	....	N56	..	140	162
N38	21.6	22.9	....	N57	..	157	183
N39	23.6	25.0	....	N58	..	...	204
N40	26.6	28.1	....	N59	..	...	225
N41	29.1	30.4	....	N60	..	...	247
N42	33	35	....	N61	..	...	269
N43	35	37	....	N62	..	...	283
N44	38	42	46	....	..	....	...
N45	42	46	50	....	..	....	...
N46	45	49	54	....	..	....	...

No. 600

Type P Elements

Heater Type No.	Motor Full Load Amps.	Heater Type No.	Motor Full Load Amps.
P1	0.17	P21	2.58
P2	0.21	P22	2.92
P3	0.25	P23	3.09
P4	0.32	P24	3.32
P5	0.39	P25	3.77
P6	0.46	P26	4.16
P7	0.57	P27	4.51
P8	0.71	P28	4.93
P9	0.79	P29	5.43
P10	0.87	P30	6.03
P11	0.98	P31	6.83
P12	1.08	P32	7.72
P13	1.19	P33	8.24
P14	1.30	P34	8.9
P15	1.43	P35	9.6
P16	1.58	P36	10.8
P17	1.75	P37	12.0
P18 P19	1.88 2.13	P38	13.5
P20	2.40	P39	15.2

Nos. 705, 709, 712

N.E.M.A. Types 8 or 11—Oil Immersed

No. 815 Type BO Relays—Type NO Elements

Heater Element Type No.	Motor Full Load, Amps.	Heater Element Type No.	Motor Full Load, Amps.			Heater Element Type No.	Motor Full Load, Amps.		
	Size 0-1 Switch Rated 5 Hp. 220 V. 7½ Hp. 440-550 V.		Size 0-1 Switch Rated 5 Hp. 220 V. 7½ Hp. 440-550 V.	Size 2 Switch Rated 15 Hp. 220 V. 25 Hp. 440-550 V.	Size 3 Switch Rated 30 Hp. 220 V. 50 Hp. 440-550 V.		Size 2 Switch Rated 15 Hp. 220 V. 25 Hp. 440-550 V.	Size 3 Switch Rated 30 Hp. 220 V. 50 Hp. 440-550 V.	Size 4 Switch Rated 50 Hp. 220 V. 100 Hp. 440-550 V.
NO1	0.51	NO20	4.08	.....	....	NO39	23.9	25.8	...
NO2	0.63	NO21	4.43	.....	....	NO40	25.9	28.0	...
NO3	0.78	NO22	4.94	.....	....	NO41	28.3	30.6	...
NO4	0.86	NO23	5.17	.....	....	NO42	30.5	33	...
NO5	0.94	NO24	5.66	.....	....	NO43	32	35	...
NO6	1.05	NO25	6.21	.....	....	NO44	36	39	48
NO7	1.17	NO26	6.80	.....	....	NO45	39	43	52
NO8	1.29	NO27	7.21	7.94	....	NO46	...	47	57
NO9	1.41	NO28	8.03	8.95	....	NO47	....	51	62
NO10	1.56	NO29	8.7	9.5	....	NO48	....	56	68
NO11	1.71	NO30	9.9	10.6	....	NO49	....	62	75
NO12	1.85	NO31	10.7	12.3	....	NO50	....	66	80
NO13	2.02	NO32	11.8	13.6	....	NO51	....	73	88
NO14	2.25	NO33	12.6	14.8	....	NO52	....	80	96
NO15	2.49	NO34	13.9	16.1	....	NO53	....	87	106
NO16	2.71	NO35	15.7	18.2	....	NO54	....	....	118
NO17	3.04	NO36	16.6	18.9	20.5	NO55	....	....	129
NO18	3.22	NO37	18.1	20.4	22.1	NO56	....	....	143
NO19	3.64	NO38	19.2	22.1	23.8	.....	....	....	...

No. 815 Overload Relay Panels

Open or Enclosed—Type B Relay—Type N Heater Elements

Size 1				Size 2						Size 3				Size 4		Size 5			
Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.	Heater Element Type No.	Motor Full Load Amps.
N2	0.55	N15	2.45	N28	8.9	N28	8.97	N41	32	N37	23.3	N50	80	N44	50	N49	89	N62	310
N3	0.67	N16	2.75	N29	9.6	N29	9.77	N42	36	N38	25.1	N51	88	N45	55	N50	97	....	...
N4	0.84	N17	3.11	N30	10.6	N30	10.8	N43	39	N39	27.5	N52	96	N46	61	N51	107	....	...
N5	0.92	N18	3.37	N31	12.2	N31	12.6	N44	44	N40	31	N53	104	N47	66	N52	116	....	...
N6	1.01	N19	3.68	N32	13.0	N32	13.5	N45	48	N41	34	....	...	N48	74	N53	126	....	...
N7	1.12	N20	4.01	N33	14.9	N33	15.4	N46	52	N42	38	....	...	N49	81	N54	141	....	...
N8	1.26	N21	4.47	N34	16.9	N34	17.6	....	..	N43	41	....	...	N50	88	N55	157	....	...
N9	1.38	N22	4.95	N35	18.0	N35	18.9	....	..	N44	47	....	...	N51	96	N56	177	....	...
N10	1.49	N23	5.50	N36	19.3	N36	20.3	....	..	N45	53	....	...	N52	105	N57	201	....	...
N11	1.65	N24	6.03	N37	20.6	N37	21.9	....	..	N46	56	....	...	N53	114	N58	224	....	...
N12	1.84	N25	6.63	N38	22.1	N38	23.5	....	..	N47	59	....	...	N54	128	N59	247	....	...
N13	2.0	N26	7.39	N39	23.8	N39	25.9	....	..	N48	67	....	...	N55	143	N60	272	....	...
N14	2.19	N27	8.11	N40	26.8	N40	29.3	....	..	N49	74	....	...	N56	161	N61	296	....	...

*For use with Nos. 709SP and 609 single phase size 1P starters only.

Heater elements each: Type N, $1.50; Type P, $1.00.

No. 600 Allen-Bradley Manual Starting Switches

Maximum Ratings: Single Pole: A.C.—1 Hp., 110-220 Volts
D.C.—No Rating

Double Pole: A.C.—1 Hp., 110-220 Volts
D.C.—¾ Hp., 115-230 Volts

Designed for starting and protecting small a.c. and d.c. motors used with unit heaters, stokers, refrigerating compressors, fans, pumps, small machine tools, grinders, etc.

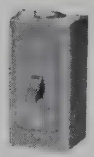
The flush mounted type units can be mounted in the standard 2½-inch deep wall switch box.

Form Nos. 51 and 52—single and double pole switch, with toggle lever operator.

Form Nos. 51K and 52K—single and double pole switch, key operated. These forms are available in Type 1 and open type construction only.

Form Nos. 52P and 52KP—same as Nos. 52 and 52K plus a neon type pilot light as part of switch. Switch is same size as standard form Nos. 51 and 52, giving the advantage of an indicating light without sacrificing space.

Form No. 52 Open Type



Form Nos. 51 or 52 N.E.M.A. Type 1 Enclosure

Form Nos. 62 and 62K—double pole switch and filament type pilot light mounted in one enclosure.

Form Nos. 72 and 72K—double pole switch plus a three-position selector switch in one enclosure.

Form Nos. 81 and 82—single or double pole switch with lever to which linkage can be attached for remote operation of switch.

Form Nos. 92, 92K, 92P, and 92KP—two form Nos. 52, 52K, 52P or 52KP switches mounted in one enclosure.

Prices include one Type P heater element which can be omitted or supplied at $1.00 each. Prices for form Nos. 92, 92K, 92P and 92KP include two Type P elements.

Single Pole

		N.E.M.A. Type 1 General Purpose		N.E.M.A. Type 4 Watertight Weatherproof		N.E.M.A. Type 7 Class 1—Group D Hazardous Locations		*Flush Mounting		Open Type	
Form No.	Description	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
51	Toggle Type	600TAX4	$7.50	600TCX4	$24.00	600TEX4	$24.00	600TKX4	$7.00	600TOX4	$6.50
51K	Key Type	600TAX48	9.50	....	.....	....	.....	600TKX48	9.00	600TOX48	8.50
81	Lever Type	600TAX148	8.50	....	.....	....	.....	....	.....	600TOX148	7.50

Double Pole

Toggle Type

		N.E.M.A. Type 1 General Purpose		N.E.M.A. Type 4 Watertight Weatherproof		N.E.M.A. Type 7 Class 1—Group D Hazardous Locations		*Flush Mounting		Open Type	
Form No.	Description	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
52	Switch Only	600TAX5	$8.50	600TCX5	$25.00	600TEX5	$25.00	600TKX5	$8.00	600TOX5	$7.50
52P	†With Pilot Light	600TAX109	14.00	....	.....	....	.....	600TKX109	13.50	600TOX109	13.00
62	‡With Pilot Light:										
	110 Volt	600TAD7	19.00	600TCD7	60.00	600TED7	60.00	600TKD7	18.00	....	.....
	220 Volt	600TAA7	19.00	600TCA7	60.00	600TEA7	60.00	600TKA7	18.00	....	.....
72	§With Selector Switch	600TAX9	18.00	600TCX9	60.00	600TEX9	60.00	....	.....	....	.....
72P	With Selector Switch †§and Pilot Light	600TAX142	24.00	....	.....	....	.....	....	.....	....	.....
92	Two Switches in One Enclosure	600TAX10	20.00	600TCX10	60.00	600TEX10	60.00	600TKX10	19.00	....	.....
92P	Two Switches in One Enclosure; Pilot Light †on both Switches	600TAX144	31.00	....	.....	....	.....	600TKX144	30.00	....	.....

Key Type

		N.E.M.A. Type 1 General Purpose		N.E.M.A. Type 4 Watertight Weatherproof		N.E.M.A. Type 7 Class 1—Group D Hazardous Locations		*Flush Mounting		Open Type	
Form No.	Description	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
52K	Switch Only	600TAX49	$10.50	....	.....	....	.....	600TKX49	$10.00	600TOX49	$9.50
52KP	†With Pilot Light	600TAX110	16.00	....	.....	....	.....	600TKX110	15.50	600TOX110	15.00
62K	‡With Pilot Light:										
	110 Volt	600TAD51	21.00	....	.....	....	.....	600TKD51	20.00	....	.....
	220 Volt	600TAA51	21.00	....	.....	....	.....	600TKA51	20.00	....	.....
72K	§With Selector Switch	600TAX53	20.00	....	.....	....	.....	....	.....	....	.....
72KP	With Selector Switch †§and Pilot Light	600TAX145	26.00	....	.....	....	.....	....	.....	....	.....
92K	Two Switches in One Enclosure	600TAX55	24.00	....	.....	....	.....	600TKX55	23.00	....	.....
92KP	Two Switches in One Enclosure: Pilot Light †on both Switches............	600TAX147	35.00	....	.....	....	.....	600TKX147	34.00	....	.....

Lever Type

		N.E.M.A. Type 1 General Purpose		N.E.M.A. Type 4 Watertight Weatherproof		N.E.M.A. Type 7 Class 1—Group D Hazardous Locations		*Flush Mounting		Open Type	
Form No.	Description	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
82	Lever Type	600TAX149	$9.50	....	.....	....	.....	....	.....	600TOX149	$8.50

*The flush mounting construction includes the flush plate but not the switch box.

†Neon pilot light built in construction. Same switch can be used for 110 or 220 volts.

‡Incandescent bulb pilot light. Form No. 62 switches can be used for either 110 or 220 volts. Pilot light can be changed from one voltage to the other by merely changing the bulb to one of the proper voltage.

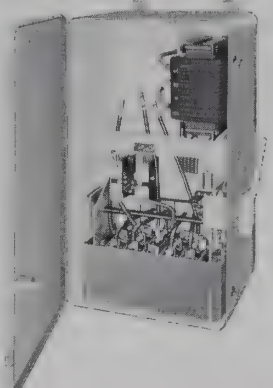
§Form Nos. 72, 72P, 72K and 72KP are for use on a.c. only, they do not have a d.c. rating.

No. 646 Allen-Bradley Manual Autotransformer-Type Starters

Form T—Air Break

Form TX—Oil-Immersed

600 Volts, 25, 50, 60 Cycles—3 Phase



Designed for starting squirrel cage polyphase motors when the characteristics of the driven load or power company limitations requires starting at reduced voltage. The autotransformer is designed in accordance with the standards of the National Electrical Manufacturers Association.

The switching mechanism is provided with patented Allen-Bradley double break, silver alloy contacts. The starter, in sizes A, B, and C, will be furnished as standard with air-break contacts, Form T.

For applications where oil-immersed contacts are desirable, sizes A, B, and C, can be furnished in the oil-immersed construction, Form TX. The method of operation is identical to that of the Form T airbreak. Where explosive dust is encountered it becomes absolutely necessary to use N.E.M.A. Type 9 enclosures.

The time delay switchover control can be adjusted for accelerating periods from 0 to 15 seconds. The operator cannot switch the motor to running voltage until the preset accelerating period has elapsed. This delay is adjusted for approximately 5 seconds. A no-voltage release latch trips the starter in case of voltage failure.

Prices include one pair of Type N overload relay heater elements. Heater elements can be omitted or additional ones supplied at $3.00 per pair. If the Form TX oil-immersed construction is desired, specify. If not specified Form T air break construction will be supplied. Size D starter is available in Form TX oil-immersed construction only.

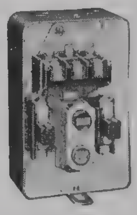
Maximum Hp. Ratings Hp.	Maximum Hp. Ratings Volts	Size	60-50 Cycles N.E.M.A. Type 1 General Purpose Air Break Form T No.	60-50 Cycles N.E.M.A. Type 1 General Purpose Oil-Immersed Form TX No.	60-50 Cycles N.E.M.A. Type 1 General Purpose Each	60-50 Cycles N.E.M.A. Type 4 Watertight N.E.M.A. Type 5 Dust-Tight N.E.M.A. Type 9 Class 2 Group G Each	Size	25 Cycles N.E.M.A. Type 1 General Purpose Air Break Form T No.	25 Cycles N.E.M.A. Type 1 General Purpose Oil-Immersed Form TX No.	25 Cycles N.E.M.A. Type 1 General Purpose Each	25 Cycles N.E.M.A. Type 4 Watertight N.E.M.A. Type 5 Dust-Tight N.E.M.A. Type 9 Class 2 Group G Each
5	220	A	646LAA65	646LAA98-65	$341.00	$776.00	A	646LAJ65	646LAJ98-65	$357.00	$792.00
5	440	A	646LAB65	646LAB98-65	341.00	776.00	A	646LAK65	646LAK98-65	357.00	792.00
5	550	A	646LAC65	646LAC98-65	341.00	776.00	A	646LAL65	646LAL98-65	357.00	792.00
7½	220	A	646LAA66	646LAA98-66	341.00	776.00	A	646LAJ66	646LAJ98-66	357.00	792.00
7½	440	A	646LAB66	646LAB98-66	341.00	776.00	A	646LAK66	646LAK98-66	357.00	792.00
7½	550	A	646LAC66	646LAC98-66	341.00	776.00	A	646LAL66	646LAL98-66	357.00	792.00
10	220	A	646LAA67	646LAA98-67	341.00	776.00	A	646LAJ67	646LAJ98-67	357.00	792.00
10	440	A	646LAB67	646LAB98-67	341.00	776.00	A	646LAK67	646LAK98-67	357.00	792.00
10	550	A	646LAC67	646LAC98-67	341.00	776.00	A	646LAL67	646LAL98-67	357.00	792.00
15	220	A	646LAA68	646LAA98-68	341.00	776.00	A	646LAJ68	646LAJ98-68	357.00	792.00
15	440	A	646LAB68	646LAB98-68	341.00	776.00	A	646LAK68	646LAK98-68	357.00	792.00
15	550	A	646LAC68	646LAC98-68	341.00	776.00	A	646LAL68	646LAL98-68	357.00	792.00
20	220	A	646LAA69	646LAA98-69	357.00	792.00	A	646LAJ69	646LAJ98-69	372.00	807.00
20	440	A	646LAB69	646LAB98-69	357.00	792.00	A	646LAK69	646LAK98-69	372.00	807.00
20	550	A	646LAC69	646LAC98-69	357.00	792.00	A	646LAL69	646LAL98-69	372.00	807.00
25	220	A	646LAA70	646LAA98-70	357.00	792.00	A	646LAJ70	646LAJ98-70	372.00	807.00
25	440	A	646LAB70	646LAB98-70	357.00	792.00	A	646LAK70	646LAK98-70	372.00	807.00
25	550	A	646LAC70	646LAC98-70	357.00	792.00	A	646LAL70	646LAL98-70	372.00	807.00
30	220	A	646LAA71	646LAA98-71	370.00	805.00	B	646MAJ71	646MAJ98-71	671.00	1371.00
30	440	A	646LAB71	646LAB98-71	370.00	805.00	B	646MAK71	646MAK98-71	671.00	1371.00
30	550	A	646LAC71	646LAC98-71	370.00	805.00	B	646MAL71	646MAL98-71	671.00	1371.00
40	220	B	646MAA72	646MAA98-72	645.00	1345.00	B	646MAJ72	646MAJ98-72	696.00	1396.00
40	440	A	646LAB72	646LAB98-72	390.00	825.00	B	646MAK72	646MAK98-72	696.00	1396.00
40	550	A	646LAC72	646LAC98-72	390.00	825.00	B	646MAL72	646MAL98-72	696.00	1396.00
50	220	B	646MAA73	646MAA98-73	645.00	1345.00	B	646MAJ73	646MAJ98-73	696.00	1396.00
50	440	A	646LAB73	646LAB98-73	390.00	825.00	B	646MAK73	646MAK98-73	696.00	1396.00
50	550	A	646LAC73	646LAC98-73	390.00	825.00	B	646MAL73	646MAL98-73	696.00	1396.00
60	220	C	646PAA74	646PAA98-74	695.00	1395.00	C	646PAJ74	646PAJ98-74	755.00	1455.00
60	440	B	646MAB74	646MAB98-74	695.00	1395.00	C	646PAK74	646PAK98-74	755.00	1455.00
60	550	B	646MAC74	646MAC98-74	695.00	1395.00	C	646PAL74	646PAL98-74	755.00	1455.00
75	220	C	646PAA75	646PAA98-75	695.00	1395.00	C	646PAJ75	646PAJ98-75	755.00	1455.00
75	440	B	646MAB75	646MAB98-75	695.00	1395.00	C	646PAK75	646PAK98-75	755.00	1455.00
75	550	B	646MAC75	646MAC98-75	695.00	1395.00	C	646PAL75	646PAL98-75	755.00	1455.00
100	220	D	....	646SAA98-76	1050.00	....	D	....	646SAJ98-76	1150.00	....
100	440	B	646MAB76	646MAB98-76	695.00	1395.00	D	....	646SAK98-76	1150.00	....
100	550	B	646MAC76	646MAC98-76	695.00	1395.00	D	....	646SAL98-76	1150.00	....
125	220	D	....	646SAA98-77	1050.00	....	D	....	646SAJ98-77	1150.00	....
125	440	C	646PAB77	646PAB98-77	755.00	1455.00	D	....	646SAK98-77	1150.00	....
125	550	C	646PAC77	646PAC98-77	755.00	1455.00	D	....	646SAL98-77	1150.00	....
150	440	C	646PAB78	646PAB98-78	755.00	1455.00	..	....	....	....	....
150	550	C	646PAC78	646PAC98-78	755.00	1455.00	..	....	....	....	....
200	440	D	....	646SAB98-79	1150.00	....	..	....	....	....	....
200	550	D	....	646SAC98-79	1150.00	....	..	....	....	....	....
250	440	D	....	646SAB98-80	1150.00	....	..	....	....	....	....
250	550	D	....	646SAC98-80	1150.00	....	..	....	....	....	....

Order numbers for the Types 4, 5, and 9 enclosures are the same as those for the Type 1 except that the second letter must be changed to the letter C for Type 4, D for Type 5 and G for Type 9. Form TX is not available in types 4, 5 and 9 enclosures.

Can be furnished without the undervoltage or overload protective features at the prices listed for the standard starters which include these features. Can be supplied with a third overload relay at the following price additions: Size A, $30.00; Size B, $40.00; Size C, $78.00; Size D, $186.00. Time-delay undervoltage protection can be supplied with Size A, B and C starters at an additional charge of $85.00. If specified Size D starters can be supplied at no charge. A control relay to provide either a normally open or a normally closed interlock can be added to all sizes of starters at an additional charge of $32.00. A flush type ammeter mounted in cover of N.E.M.A. Type 1 starter enclosure can be supplied at $198.00 extra. N.E.M.A. Type 1 enclosures can be provided with a dripproof hood at the following extra charges: Size A, $60.00; Size B, C or D, $100.00. This construction does not result in the equivalent of a watertight exclosure.

No. 609 Allen-Bradley Across-the-Line Starting Switches

N.E.M.A. Type 1
Size 0


N.E.M.A. Type 1
Size 0
With Cover
Removed

N.E.M.A. Type 7
Enclosure for
Class 1, Group D
Hazardous
Locations

Operated by pressing push buttons in the front of the switch. Pressing the start button operates a quick acting cam and roller mechanism, which throws the movable contact bar upward with a snap against the fixed contacts. Pressing the stop-reset button causes the switch to open with a quick break contact action. If a maintained overload on the motor trips the overload breakers, they can be reset by pushing the stop-reset button.

Available for both single and polyphase motors.

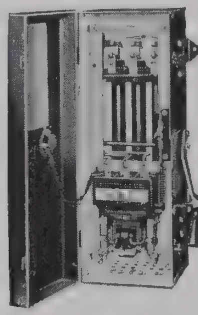
Prices include one Type N overload relay heater element for single phase and d.c. starters. Two Type N elements are included with two or three phase starters. Heater elements can be omitted or supplied at $1.50 each or $3.00 per pair.

Size	Maximum HP. Ratings			N.E.M.A. Type 1 —General Purpose—		N.E.M.A. Type 4 Watertight —Weatherproof—		N.E.M.A. Type 7 Class 1—Group D Class 2—Group F Class 2—Group G Hazardous —Locations—		N.E.M.A. Type 1B *Flush Mounting —with Box—		—Open Type—	
No.	110 V.	208-220 V.	440-600 V.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
				Three Pole Single Phase									
0	1	1½	...	609AAX	$20.00	609ACX	$52.00	609AEX	$66.00	609ALX	$28.00	609AOX	$18.00
1	1½	3	...	609BAX	25.00	609BCX	64.00	609BEX	78.00	609BLX	33.00	609BOX	23.00
1P	3	5	...	609XAX	36.00	609XCX	78.00	609XEX	90.00	609XLX	44.00	609XOX	34.00
				Three Phase									
0	1½	2	3	609AAW	$25.00	609ACW	$57.00	609AEW	$71.00	609ALW	$33.00	609AOW	$23.00
1	3	5	7½	609BAW	30.00	609BCW	69.00	609BEW	83.00	609BLW	38.00	609BOW	28.00
				Four Pole—Two Phase—4 Wire									
0	1½	2	3	609AAY	$35.00	609ACY	$72.00	609AEY	$86.00	609ALY	$47.00	609AOY	$33.00
1	3	5	7½	609BAY	42.00	609BCY	90.00	609BEY	104.00	609BLY	54.00	609BOY	40.00
				D.C.—Three Pole (Two Poles in Series)									
0	¾	1	...	609AAV	$20.00	609ACV	$52.00	609AEV	$66.00	609ALV	$28.00	609AOV	$18.00
1	1	1½	...	609BAV	25.00	609BCV	64.00	609BEV	78.00	609BLV	33.00	609BOV	23.00

*Two other flush mounted constructions are available; Type 1B1, same as Type 1B, except without back of panel enclosure. Prices for the Type 1B1 construction are $1.00 less than prices for the Type 1B construction. Type 1B3, designed for mounting in a plaster wall, complete with pull box and flush plate. Add $5.00 to prices of Type 1B construction.

Mounting pedestals, single pedestal for mounting one Type 1 switch $6.00. Double pedestal for mounting two Type 1 switches $12.00. Size 0 enclosed switches are approved for group fusing. Switches can be supplied with a third overload relay. Add $6.00 to prices for sizes 0 to 1, Nema Type 1, 1B, Enclosure and open type.

No. 640 Allen-Bradley Semi-Automatic Resistance Starters



For velvet-smooth acceleration of squirrel-cage motors. Recommended for use in network systems or where it is necessary to accelerate the load very gradually. There is no violent current inrush; no jolts to motor or connected machine.

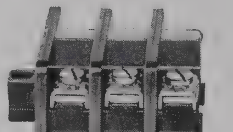
Started by hand lever and stopped by push button in cabinet cover. Provides no-voltage protection. All starters equipped with two overload relays. These starters have solenoid contactors with double break, silver alloy contacts.

3-Phase—2-Phase, 3-Wire

Maximum Hp. Rating	25-50-60 Cycles Each	Volts
5-7½-10	$341.00	220-440-550
15	341.00	220-440-550
20-25	357.00	220-440-550
30	370.00	220-440-550
40	645.00	220
40	390.00	440-550

Prices of larger sizes upon application.

No. 892 Allen-Bradley Type A Terminal Blocks



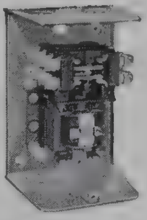
For use wherever it is necessary to bring lines into or out of installations such as switchboards and control panels. They make it possible to install the wiring neatly, bringing all wire ends to the same small space.

Any number of 15 or 25-ampere terminal blocks can be mounted directly on a panel or switchboard without using special brackets, channels, or plates. All blocks of a given rating are identical units and each will accommodate one circuit. Units are combined when more than one circuit is necessary. Combined units interlock with each other and are self-supporting to form a rigid assembly.

Terminal blocks rated at 15 and 25 amperes are constructed so that blocks of the two different ratings will interlock with each other. An assembly can be made up of both sizes, eliminating the need for separate installations. The 15-ampere blocks are furnished with a clamp type terminal screw assembly. Standard 25-ampere blocks also have this clamp-type terminal screw assembly but can be furnished with plain binding head terminal screws if specified. Add letter X to No. if wire clamps are to be omitted.

No.	Each	Part	Maximum Wire Size	Quantity
		15 Amperes		
89215T	$.40	Term Block..............	12	100
89215E	.17	End Piece................	..	25
89215A	.17	Anchor Unit............	..	10
		25 Amperes		
89225T	$.45	Term Block..............	10	100
89225E	.20	End Piece................	..	25
89225A	.20	Anchor Unit............	..	10

No. 700 Type BX Allen-Bradley A.C. Control Relays



Universal type relays are useful when it is desirable to have a small stock of relays suitable for a large number of contact combinations. In stocking just the two and four pole universal type relays, it is possible to obtain a large combination of normally open and normally closed contacts.

In the two or four pole universal relays all poles have the normally open and normally closed contacts. In the six and eight pole universal relays, only four of the poles offer the double contact feature; the remaining poles have normally open contacts only.

While the adjacent poles have adequate electrical clearance to safely handle circuits of opposite polarity up to 600 volts a.c., the circuits in which the normally open, normally closed contacts of the individual pole will be used, should be of the same polarity.

To change from normally open to normally closed contacts, merely change the incoming wire connections to that respective pole.

Maximum rating; 10 amperes, non-inductive load. Standard voltages; 6, 12, 24, 32, 64, 110, 220, 440 and 550 volts. Standard frequencies; 25, 50 and 60 cycles.

					Enclosed			
No. Poles	Contacts N.O.	N.C.	Open Type No.	Each	N.E.M.A. Type 1 General Purpose No.	Each	N.E.M.A. Type 4 *Watertight Weather-proof Each	N.E.M.A. Type 7 *Class 1 Group D Hazardous Locations Each
2	2	2	BX-220	$18.00	BX-22	$21.00	$54.00	$74.00
4	4	4	BX-440	23.50	BX-44	27.00	60.00	80.00
6	6	4	BX-640	35.00	BX-64	38.00	71.00	91.00
8	8	4	BX-840	41.00	BX-84	44.00	77.00	97.00

*The listed Type No. is for the relay enclosed in the N.E.M.A. Type 1 enclosure. For the same relay in a watertight N.E.M.A. Type 4 enclosure, append the numeral 4; the N.E.M.A. Type 7 enclosure appends the numeral 7.

Allen-Bradley Limit Switches

No. 801—Type ASC1-7

Roller lever type heavy duty limit switch with one normally open and one normally closed contact.

Slow action, spring return.

Type ASC1-7........................each **$16.00**

No. 801—Type ASC2-1

Same as Type ASC1-7, except with snap action.

Type ASC2-1................................each **$22.00**

No. 802—Type PASJ2-18

Precision type limit switch equipped with a plunger roller type operating lever.

One normally open, normally closed contact—single pole, double throw.

Snap action, spring return.

Type PASJ2-18..............................each **$19.00**

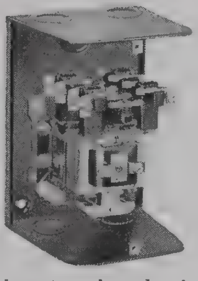
• MATERIAL NOT LISTED •

All the goods we can furnish are not listed in this catalog.

If you don't find everything you need, please advise us and we will promptly send manufacturers catalogs.

No. 700 Allen-Bradley Solenoid A.C. Control Relays

Types B and C—General Purpose



A line of small, solenoid operated switching units for industrial applications that require compact miniature contactors of unfailing dependability. The structural elements, although lighter in weight and smaller in switching capacity, offer the same high quality in design and in performance as the standard line of Allen-Bradley motor control incorporating solenoid type switches.

Used extensively in machine tool sequence controls, as are common in drilling, tapping, boring, milling, and grinding operations. Also used for the control of valves in connection with hydraulically operated functions of machine tools.

Operated by opening and closing the circuit to the operating coil through some pilot device, which may be another No. 700 relay, or a push button, limit switch, pressure switch, thermostat, or similar contact making device.

Can be furnished in single and multiple pole constructions up to and including a 12-pole unit. Available as simple relays, and also in the following constructions: mechanically-held type, universal type, transformer type, and in the 3-wire thermostat type, both plain and equipped with a transformer. Listed as open type, and in the N.E.M.A. Type 1, 4, and 7 enclosures.

Maximum rating; 10 amperes, non-inductive load.

Standard voltages: 6, 12, 24, 32, 64, 110, 220, 440 or 550 volts. Standard frequencies; 25, 50 and 60 cycles.

				Enclosed			
Contacts N.O.	N.C.	Open Type No.	Each	N.E.M.A. Type 1 General Purpose No.	Each	N.E.M.A. Type 4 *Watertight Each	N.E.M.A. Type 7 *Class 1 Group D Each
Two Poles							
2	0	C-200	$13.00	C-20	$16.00	$33.00	$69.00
1	1	C-110	16.00	C-11	19.00	36.00	72.00
0	2	C-020	16.00	C-02	19.00	36.00	72.00
Three Poles							
3	0	B-300	$16.00	B-30	$19.00	$52.00	$72.00
2	1	B-210	19.00	B-21	22.00	55.00	75.00
1	2	B-120	19.00	B-12	22.00	55.00	75.00
0	3	B-030	19.00	B-03	22.00	55.00	75.00
Four Poles							
4	0	B-400	$17.00	B-40	$20.00	$53.00	$73.00
3	1	B-310	20.00	B-31	23.00	56.00	76.00
2	2	B-220	20.00	B-22	23.00	56.00	76.00
1	3	B-130	20.00	B-13	23.00	56.00	76.00
0	4	B-040	20.00	B-04	23.00	56.00	76.00
Six Poles							
6	0	B-600	$25.00	B-60	$28.00	$61.00	$81.00
5	1	B-510	28.00	B-51	31.00	64.00	84.00
4	2	B-420	28.00	B-42	31.00	64.00	84.00
3	3	B-330	28.00	B-33	31.00	64.00	84.00
2	4	B-240	28.00	B-24	31.00	64.00	84.00
Eight Poles							
8	0	B-800	$30.00	B-80	$33.00	$66.00	$86.00
7	1	B-710	33.00	B-71	36.00	69.00	89.00
6	2	B-620	33.00	B-62	36.00	69.00	89.00
5	3	B-530	33.00	B-53	36.00	69.00	89.00
4	4	B-440	33.00	B-44	36.00	69.00	89.00

*The listed Type No. is for the relay enclosed in the N.E.M.A. Type 1 enclosure. For the same relay in a watertight N.E.M.A. Type 4 enclosure append the numeral 4; the N.E.M.A. Type 7 appends the numeral 7.

Type B relays can be supplied with overlap contact (normally open contact closes before normally closed contact opens) at an extra charge of $4.50 per set of contacts.

No. 849 Allen-Bradley Pneumatic Timing Relays

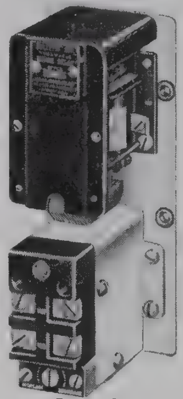
Maximum Ratings: Non-Inductive: A.C.—10 Amperes, 600 Volts
Inductive: A.C.— 3 Amperes, 110 Volts; 2 Amperes, 220 Volts
1 Ampere, 440–550 Volts
Non-Inductive: D.C.— 1 Ampere, 115 Volts; 0.25 Ampere, 230 Volts

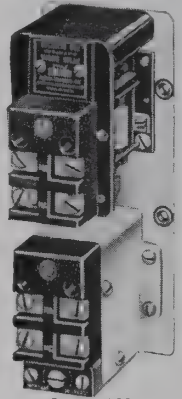
With synthetic rubber bellows for controlling tripping time. Great accuracy; long timing range.

Can be supplied to provide time delay in either of two ways. The On-delay provides timer delay after the coil is energized. The Off-delay provides the time delay after the coil is de-energized. Either type of arrangement can be changed in the field. The relay base plate is marked to indicate the proper solenoid mounting holes to use for either operation.

Coils are available for standard voltages of 110, 220, 440 and 550 volts at 25, 30, 50 or 60 cycles a.c. and 115 and 230 volts d.c.

Have a range of 1/6 to 180 seconds, with an accuracy of approximately ± 10 per cent.


Style A


Style AX

Adjustment of the time delay is provided by an adjustable air vent. Timing unit is provided with a contact block having one normally open and one normally closed contact. Contacts are silver alloy of the quick make and break type.

Style A and C: Standard On-Delay type. Relay times out after coil is energized.

Style B and D: Standard Off-Delay type. Relay times out after coil is de-energized.

Style H and L: Two step relays having one timing unit each of which can be adjusted independent of the other.

Style AB: Double timing relay having both On-delay and Off-delay timing units.

Modification D: Visual indication of the adjusting screw position. A numbered dial gives a reference position to which time can be preset for known machine operations. This is not a calibrated indicator.

Modification M: A manual reset button is provided to reset the timing units contacts after they have been operated.

Modifications X and XX: One or two sets of auxiliary contacts operated directly by the solenoid. These contacts operate as soon as the solenoid is energized. No time delay.

Order numbers shown are for 60 cycles. To determine order number for 25 or 50 cycles substitute letter from table below for third letter in the 60 cycle number.

Cycles	Volts 110	220	440	550
25	M	J	K	L
50	S	P	Q	R

***A.C.—Style A—Standard On-Delay**

Volts	N.E.M.A. Type 1 General Purpose No.	Each	N.E.M.A. Type 4 Watertight Weatherproof No.	Each	N.E.M.A. Type 7 Class 1 Group D Hazardous Locations No.	Each	‡N.E.M.A. Type 1B Flush Mounting No.	Each	Open Type No.	Each
110	849ZAD32	$64.00	849ZCD32	$94.00	849ZED32	$170.00	849ZKD32	$62.00	849ZOD32	§$56.00
220	849ZAA32	64.00	849ZCA32	94.00	849ZEA32	170.00	849ZKA32	62.00	849ZOA32	§ 56.00
440	849ZAB32	64.00	849ZCB32	94.00	849ZEB32	170.00	849ZKB32	62.00	849ZOB32	§ 56.00
550	849ZAC32	64.00	849ZCC32	94.00	849ZEC32	170.00	849ZKC32	62.00	849ZOC32	§ 56.00
	†A.C.—Style B—Standard Off-Delay									
110	849ZAD33	$64.00	849ZCD33	$94.00	849ZED33	$170.00	849ZKD33	$62.00	849ZOD33	§$56.00
220	849ZAA33	64.00	849ZCA33	94.00	849ZEA33	170.00	849ZKA33	62.00	849ZOA33	§ 56.00
440	849ZAB33	64.00	849ZCB33	94.00	849ZEB33	170.00	849ZKB33	62.00	849ZOB33	§ 56.00
550	849ZAC33	64.00	849ZCC33	94.00	849ZEC33	170.00	849ZKC33	62.00	849ZOC33	§ 56.00
	***A.C.—Style H—With Two Timing Units On-Delay**									
110	849ZAD122	$128.00	849ZCD122	$188.00	849ZED122	$340.00	....	.....	849ZOD122	$112.00
220	849ZAA122	128.00	849ZCA122	188.00	849ZEA122	340.00	....	.....	849ZOA122	112.00
440	849ZAB122	128.00	849ZCB122	188.00	849ZEB122	340.00	....	.....	849ZOB122	112.00
550	849ZAC122	128.00	849ZCC122	188.00	849ZEC122	340.00	....	.....	849ZOC122	112.00
	†A.C.—Style L—With Two Timing Units Off-Delay									
110	849ZAD123	$128.00	849ZCD123	$188.00	849ZED123	$340.00	....	.....	849ZOD123	$112.00
220	849ZAA123	128.00	849ZCA123	188.00	849ZEA123	340.00	....	.....	849ZOA123	112.00
440	849ZAB123	128.00	849ZCB123	188.00	849ZEB123	340.00	....	.....	849ZOB123	112.00
550	849ZAC123	128.00	849ZCC123	188.00	849ZEC123	340.00	....	.....	849ZOC123	112.00
	A.C.—Style AB—Double Unit On and Off-Delay									
110	849ZAD124	$128.00	....	......	....	......	....	.....	849ZOD124	$112.00
220	849ZAA124	128.00	....	......	....	......	....	.....	849ZOA124	112.00
440	849ZAB124	128.00	....	......	....	......	....	.....	849ZOB124	112.00
550	849ZAC124	128.00	....	......	....	......	....	.....	849ZOC124	112.00
	***D.C.—Style C—Standard On-Delay**									
115	849ZAG32	$70.00	849ZCG32	$102.00	849ZEG32	$176.00	....	.....	849ZOG32	$62.00
230	849ZAH32	70.00	849ZCH32	102.00	849ZEH32	176.00	....	.....	849ZOH32	62.00
	†D.C.—Style D—Standard Off-Delay									
115	849ZAG33	$70.00	849ZCG33	$102.00	849ZEG33	$176.00	....	.....	849ZOG33	$62.00
230	849ZAH33	70.00	849ZCH33	102.00	849ZEH33	176.00	....	.....	849ZOH33	62.00

*On-delay provides time delay after the coil is energized.
†Off-delay provides time delay after the coil is de-energized.
‡A back of panel enclosure is available at $6.00. Specify if back of panel enclosure is desired. §Also available in the horizontal construction. Style ZA is the On-delay timer in the horizontal construction. Style ZB is the Off-delay timer in the horizontal construction.

Modifications. A large variety of timers can be provided by modifying the basic styles listed above. To price a timer with modifications, simply select the price of the basic timer, from the table above, and add the price addition for the modification selected from the table below. The style number of a timer with modifications is the style number of the basic timer to which is added the letter identifying the modification. The order number of a timer with modifications is the order number of the basic timer to which is added the numbers selected from the third column in the table below.

Style Letter	Description	Code No.	Add
D	Dial Indicator on Timing Mechanism	2	$8.00
M	Maintained Contact Timing Unit	5	10.00
X	One Set Instantaneous Auxiliary Contacts	1	10.00
XX	Two Sets Instantaneous Auxiliary Contacts	7	20.00
DX	Dial Indicator on Timing Mechanism and One Set Instantaneous Auxiliary Contacts	3	18.00
DXX	Dial Indicator on Timing Mechanism and Two Sets Instantaneous Auxiliary Contacts	4	28.00
MX	Maintained Contact Unit and One Set Instantaneous Auxiliary Contacts	6	28.00

No. 702 Allen-Bradley Solenoid A.C. Contactors

Electrically Held

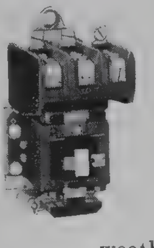
600 Volts, 25, 50, 60 Cycles

Differs radically in construction from the conventional clapper type design and offers many inherent advantages not found in the clapper type construction. The solenoid contactor is highly efficient and inherently reliable. Automatically opening and closing a.c. circuits under all kinds of service and operating conditions.

Consists of operating solenoid, cross bar which carries movable contacts, solenoid plunger on which cross bar is mounted, and necessary line and motor terminals. Entire solenoid switch assembly is mounted on a rigid steel plate.

The straight line up-and-down motion of the solenoid plunger permits the use of double break contacts. As a result, the need for flexible jumpers is eliminated. The plunger operates freely in a loose fitting, smooth bronze sleeve, so that friction is virtually non-existent.

There are no bearings, hinges or pivots included in the design of this contactor, which might interfere with its accurate and reliable operation.



A compact design of the arc hood results in a remarkably small contactor per rating. The individual arc chamber for each pole provides a high arc-interrupting capacity. These contactors easily interrupt currents ten times the maximum rating of the switch at maximum voltage.

Furnished in the open type construction and in a variety of enclosures. The standard enclosure is the N.E.M.A. Type 1, which is a grey enamel sheet steel design, with a white enamel interior. Can also be furnished in N.E.M.A. Type 4 watertight and weatherproof enclosures, N.E.M.A. Type 5 dust-tight enclosure, N.E.M.A. Type 7 for Class 1 Group D hazardous gas locations and N.E.M.A. Type 9 for Class 2 Group G hazardous dust locations.

To determine order number for 25 or 50 cycle contactors, substitute letter from table for third letter in the 60 cycle order number.
Cycles

	Volts			
Cycles	110	220	440	550
25	M	J	K	L
50	S	P	Q	R

	Ampere Rating				N.E.M.A. Type 1—General Purpose					Open Type				
	*8-Hour		Incandescent		Number for 60 Cycles					Number for 60 Cycles				
Size No.	Enclosed	Open	Lamp Load	†No. Poles	110 V.	220 V.	440 V.	550 V.	Each	110 V.	220 V.	440 V.	550 V.	Each
†00	9	10	5	1	702TAD91	702TAA91	702TAB91	702TAC91	$19.00	702TOD91	702TOA91	702TOB91	702TOC91	$17.00
†00	9	10	5	2	702TAD92	702TAA92	702TAB92	702TAC92	22.00	702TOD92	702TOA92	702TOB92	702TOC92	20.00
†00	9	10	5	3	702TAD93	702TAA93	702TAB93	702TAC93	25.00	702TOD93	702TOA93	702TOB93	702TOC93	23.00
†00	9	10	5	4	702TAD94	702TAA94	702TAB94	702TAC94	33.00	702TOD94	702TOA94	702TOB94	702TOC94	31.00
†0	13	15	8	1	702AAD91	702AAA91	702AAB91	702AAC91	25.00	702AOD91	702AOA91	702AOB91	702AOC91	23.00
†0	13	15	8	2	702AAD92	702AAA92	702AAB92	702AAC92	28.00	702AOD92	702AOA92	702AOB92	702AOC92	26.00
†0	13	15	8	3	702AAD93	702AAA93	702AAB93	702AAC93	31.00	702AOD93	702AOA93	702AOB93	702AOC93	29.00
†0	13	15	8	4	702AAD94	702AAA94	702AAB94	702AAC94	39.00	702AOD94	702AOA94	702AOB94	702AOC94	37.00
†1	22	25	12	1	702BAD91	702BAA91	702BAB91	702BAC91	30.00	702BOD91	702BOA91	702BOB91	702BOC91	28.00
†1	22	25	12	2	702BAD92	702BAA92	702BAB92	702BAC92	33.00	702BOD92	702BOA92	702BOB92	702BOC92	31.00
†1	22	25	12	3	702BAD93	702BAA93	702BAB93	702BAC93	36.00	702BOD93	702BOA93	702BOB93	702BOC93	34.00
†1	22	25	12	4	702BAD94	702BAA94	702BAB94	702BAC94	44.00	702BOD94	702BOA94	702BOB94	702BOC94	42.00
2	45	50	30	2	702CAD92	702CAA92	702CAB92	702CAC92	68.00	702COD92	702COA92	702COB92	702COC92	58.00
2	45	50	30	3	702CAD93	702CAA93	702CAB93	702CAC93	72.00	702COD93	702COA93	702COB93	702COC93	62.00
2	45	50	30	4	702CAD94	702CAA94	702CAB94	702CAC94	90.00	702COD94	702COA94	702COB94	702COC94	80.00
3	90	100	60	2	702DAD92	702DAA92	702DAB92	702DAC92	112.00	702DOD92	702DOA92	702DOB92	702DOC92	92.00
3	90	100	60	3	702DAD93	702DAA93	702DAB93	702DAC93	120.00	702DOD93	702DOA93	702DOB93	702DOC93	100.00
3	90	100	60	4	702DAD94	702DAA94	702DAB94	702DAC94	148.00	702DOD94	702DOA94	702DOB94	702DOC94	128.00
4	135	150	120	2	702EAD92	702EAA92	702EAB92	702EAC92	264.00	702EOD92	702EOA92	702EOB92	702EOC92	222.00
4	135	150	120	3	702EAD93	702EAA93	702EAB93	702EAC93	282.00	702EOD93	702EOA93	702EOB93	702EOC93	240.00
4	135	150	120	4	702EAD94	702EAA94	702EAB94	702EAC94	376.00	702EOD94	702EOA94	702EOB94	702EOC94	334.00
5	270	300	240	2	702FAD92	702FAA92	702FAB92	702FAC92	507.00	702FOD92	702FOA92	702FOB92	702FOC92	437.00
5	270	300	240	3	702FAD93	702FAA93	702FAB93	702FAC93	545.00	702FOD93	702FOA93	702FOB93	702FOC93	475.00
5	270	300	240	§4	702FAD94	702FAA94	702FAB94	702FAC94	1014.00	702FOD94	702FOA94	702FOB94	702FOC94	874.00
6	540	‡600	480	2	....	702GAA92	702GAB92	702GAC92	1328.00	....	702GOA92	702GOB92	702GOC92	1040.00
6	540	‡600	480	3	....	702GAA93	702GAB93	702GAC93	1502.00	....	702GOA93	702GOB93	702GOC93	1214.00
6	540	‡600	480	§4	....	702GAA94	702GAB94	702GAC94	2656.00	....	702GOA94	702GOB94	702GOC94	2080.00
7	810	‡900	720	2	....	702HAA92	702HAB92	702HAC92	1806.00	....	702HOA92	702HOB92	702HOC92	1518.00
7	810	‡900	720	3	....	702HAA93	702HAB93	702HAC93	2020.00	....	702HOA93	702HOB93	702HOC93	1732.00
7	810	‡900	720	§4	....	702HAA94	702HAB94	702HAC94	3612.00	....	702HOA94	702HOB94	702HOC94	3036.00

*Ratings for resistance heating, fluorescent lighting and solenoids.

†Contactors are supplied with a N.O. auxiliary contact for use as a holding contact on 3-wire push button control. The rating of the auxiliary contact on the sizes 00, 0 and 1 contactor is the same as the switching poles. If this auxiliary contact is not desired on these sizes use the contactor with one less switching pole. The auxiliary contact on sizes 2 and above is rated 10 amps. at 600 volts. No deduction from prices will be made for its omission.

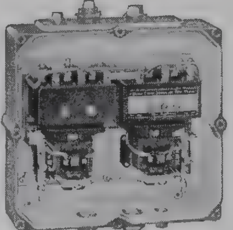
‡Supplied without a floor frame. If the floor frame is required add $50.00 to prices.

§Consist of two 2-pole contactors mounted in one enclosure.

Auxiliary contact kits are available at an additional charge.

No. 705 Allen-Bradley Across-the-Line Reversing Starters

600 Volts, 25, 50, 60 Cycles—3 Phase



Used for across-the-line starting and reversing of polyphase squirrel cage and slip-ring motors, where such operation is required by machine tools and other industrial equipment. Can also be used with certain types of single phase motors, and in motor plugging operations.

Consists of a forward and a reverse contactor. When the forward contactor is closed, the motor leads are so connected that the motor runs in the forward direction. With the reverse contactor closed, the motor runs in the opposite direction. On sizes 0 to 7 both contactors are mechanically and electrically interlocked to prevent them from closing at the same time. Size 00 starters are mechanically interlocked only.

Available in the Style RT construction, which has overload relays for protection against sustained overloads on the motor. No. 815 solder pot thermal relays are used on starters up to size 5. No. 820 thermal relays are used on sizes 6 and 7. Two overload relays are provided on 3 phase and 2 phase, 4-wire starters. Single phase starters have one relay.

Order numbers shown are for 60 cycles. To determine order numbers for 25 or 50 cycle starters substitute letter from table below for third letter in the 60 cycle order number.

	Volts			
Cycles	110	220	440	550
25	M	J	K	L
50	S	P	Q	R

Style R—Without Overload Protection

Size	Maximum HP. Ratings		*Max.	N.E.M.A. Type 1 General Purpose		N.E.M.A. Type 4 Watertight Weatherproof		N.E.M.A. Type 5 Dust-Tight		Hazardous Locations N.E.M.A. Type 7 Class 1 Group D		Hazardous Locations N.E.M.A. Type 9 Class 2 Group G		Open Type	
No.	Hp.	Volts	Amps.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
00	¾	110	10	705TAD23	$64.00	705TCD23	$110.00	705TDD23	$94.00	†	†	705TGD23	$110.00	705TOD23	$60.00
00	1	220	10	705TAA23	64.00	705TCA23	110.00	705TDA23	94.00	†	†	705TGA23	110.00	705TOA23	60.00
00	1	440	10	705TAB23	64.00	705TCB23	110.00	705TDB23	94.00	†	†	705TGB23	110.00	705TOB23	60.00
00	1	550	10	705TAC23	64.00	705TCC23	110.00	705TDC23	94.00	†	†	705TGC23	110.00	705TOC23	60.00
0	1½	110	15	705AAD23	76.00	705ACD23	122.00	705ADD23	104.00	705AED23	$234.00	705AGD23	122.00	705AOD23	72.00
0	2	220	15	705AAA23	76.00	705ACA23	122.00	705ADA23	104.00	705AEA23	234.00	705AGA23	122.00	705AOA23	72.00
0	3	440	15	705AAB23	76.00	705ACB23	122.00	705ADB23	104.00	705AEB23	234.00	705AGB23	122.00	705AOB23	72.00
0	3	550	15	705AAC23	76.00	705ACC23	122.00	705ADC23	104.00	705AEC23	234.00	705AGC23	122.00	705AOC23	72.00
1	3	110	25	705BAD23	88.00	705BCD23	152.00	705BDD23	122.00	705BED23	248.00	705BGD23	152.00	705BOD23	82.00
1	5	220	25	705BAA23	88.00	705BCA23	152.00	705BDA23	122.00	705BEA23	248.00	705BGA23	152.00	705BOA23	82.00
1	7½	440	25	705BAB23	88.00	705BCB23	152.00	705BDB23	122.00	705BEB23	248.00	705BGB23	152.00	705BOB23	82.00
1	7½	550	25	705BAC23	88.00	705BCC23	152.00	705BDC23	122.00	705BEC23	248.00	705BGC23	152.00	705BOC23	82.00
2	7½	110	50	705CAD23	172.00	705CCD23	276.00	705CDD23	214.00	705CED23	440.00	705CGD23	314.00	705COD23	156.00
2	15	220	50	705CAA23	172.00	705CCA23	276.00	705CDA23	214.00	705CEA23	440.00	705CGA23	314.00	705COA23	156.00
2	25	440	50	705CAB23	172.00	705CCB23	276.00	705CDB23	214.00	705CEB23	440.00	705CGB23	314.00	705COB23	156.00
2	25	550	50	705CAC23	172.00	705CCC23	276.00	705CDC23	214.00	705CEC23	440.00	705CGC23	314.00	705COC23	156.00
3	15	110	100	705DAD23	287.00	705DCD23	441.00	705DDD23	353.00	705DED23	767.00	705DGD23	485.00	705DOD23	259.00
3	30	220	100	705DAA23	287.00	705DCA23	441.00	705DDA23	353.00	705DEA23	767.00	705DGA23	485.00	705DOA23	259.00
3	50	440	100	705DAB23	287.00	705DCB23	441.00	705DDB23	353.00	705DEB23	767.00	705DGB23	485.00	705DOB23	259.00
3	50	550	100	705DAC23	287.00	705DCC23	441.00	705DDC23	353.00	705DEC23	767.00	705DGC23	485.00	705DOC23	259.00
4	50	220	150	705EAA23	698.00	705ECA23	970.00	705EDA23	800.00	....	......	705EGA23	1044.00	705EOA23	646.00
4	100	440	150	705EAB23	698.00	705ECB23	970.00	705EDB23	800.00	....	......	705EGB23	1044.00	705EOB23	646.00
4	100	550	150	705EAC23	698.00	705ECC23	970.00	705EDC23	800.00	....	......	705EGC23	1044.00	705EOC23	646.00
5	100	220	300	705FAA23	1333.00	....	......	....	......	....	......	....	......	705FOA23	1059.00
5	200	440	300	705FAB23	1333.00	....	......	....	......	....	......	....	......	705FOB23	1059.00
5	200	550	300	705FAC23	1333.00	....	......	....	......	....	......	....	......	705FOC23	1059.00
6	200	220	600	705GAA23	3318.00	....	......	....	......	....	......	....	......	705GOA23	2856.00
6	400	440	600	705GAB23	3318.00	....	......	....	......	....	......	....	......	705GOB23	2856.00
6	400	550	600	705GAC23	3318.00	....	......	....	......	....	......	....	......	705GOC23	2856.00
7	300	220	900	705HAA23	4580.00	....	......	....	......	....	......	....	......	705HOA23	4112.00
7	600	440	900	705HAB23	4580.00	....	......	....	......	....	......	....	......	705HOB23	4112.00
7	600	550	900	705HAC23	4580.00	....	......	....	......	....	......	....	......	705HOC23	4112.00

Style RT—With Overload Protection

Size	Maximum HP. Ratings		*Max.	N.E.M.A. Type 1 General Purpose		N.E.M.A. Type 4 Watertight Weatherproof		N.E.M.A. Type 5 Dust-Tight		Hazardous Locations N.E.M.A. Type 7 Class 1 Group D		Hazardous Locations N.E.M.A. Type 9 Class 2 Group G		Open Type	
No.	Hp.	Volts	Amps.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
00	¾	110	10	705TAD	$72.00	705TCD	$118.00	705TDD	$102.00	†	†	705TGD	$118.00	705TOD	$68.00
00	1	220	10	705TAA	72.00	705TCA	118.00	705TDA	102.00	†	†	705TGA	118.00	705TOA	68.00
00	1	440	10	705TAB	72.00	705TCB	118.00	705TDB	102.00	†	†	705TGB	118.00	705TOB	68.00
00	1	550	10	705TAC	72.00	705TCC	118.00	705TDC	102.00	†	†	705TGC	118.00	705TOC	68.00
0	1½	110	15	705AAD	84.00	705ACD	130.00	705ADD	112.00	705AED	$242.00	705AGD	130.00	705AOD	80.00
0	2	220	15	705AAA	84.00	705ACA	130.00	705ADA	112.00	705AEA	242.00	705AGA	130.00	705AOA	80.00
0	3	440	15	705AAB	84.00	705ACB	130.00	705ADB	112.00	705AEB	242.00	705AGB	130.00	705AOB	80.00
0	3	550	15	705AAC	84.00	705ACC	130.00	705ADC	112.00	705AEC	242.00	705AGC	130.00	705AOC	80.00
1	3	110	25	705BAD	96.00	705BCD	160.00	705BDD	130.00	705BED	256.00	705BGD	160.00	705BOD	90.00
1	5	220	25	705BAA	96.00	705BCA	160.00	705BDA	130.00	705BEA	256.00	705BGA	160.00	705BOA	90.00
1	7½	440	25	705BAB	96.00	705BCB	160.00	705BDB	130.00	705BEB	256.00	705BGB	160.00	705BOB	90.00
1	7½	550	25	705BAC	96.00	705BCC	160.00	705BDC	130.00	705BEC	256.00	705BGC	160.00	705BOC	90.00
2	7½	110	50	705CAD	184.00	705CCD	288.00	705CDD	226.00	705CED	452.00	705CGD	326.00	705COD	168.00
2	15	220	50	705CAA	184.00	705CCA	288.00	705CDA	226.00	705CEA	452.00	705CGA	326.00	705COA	168.00
2	25	440	50	705CAB	184.00	705CCB	288.00	705CDB	226.00	705CEB	452.00	705CGB	326.00	705COB	168.00
2	25	550	50	705CAC	184.00	705CCC	288.00	705CDC	226.00	705CEC	452.00	705CGC	326.00	705COC	168.00
3	15	110	100	705DAD	305.00	705DCD	459.00	705DDD	371.00	705DED	785.00	705DGD	503.00	705DOD	277.00
3	30	220	100	705DAA	305.00	705DCA	459.00	705DDA	371.00	705DEA	785.00	705DGA	503.00	705DOA	277.00
3	50	440	100	705DAB	305.00	705DCB	459.00	705DDB	371.00	705DEB	785.00	705DGB	503.00	705DOB	277.00
3	50	550	100	705DAC	305.00	705DCC	459.00	705DDC	371.00	705DEC	785.00	705DGC	503.00	705DOC	277.00
4	50	220	150	705EAA	724.00	705ECA	996.00	705EDA	826.00	....	......	705EGA	1070.00	705EOA	672.00
4	100	440	150	705EAB	724.00	705ECB	996.00	705EDB	826.00	....	......	705EGB	1070.00	705EOB	672.00
4	100	550	150	705EAC	724.00	705ECC	996.00	705EDC	826.00	....	......	705EGC	1070.00	705EOC	672.00
5	100	220	300	705FAA	1410.00	....	......	....	......	....	......	....	....	705FOA	1136.00
5	200	440	300	705FAB	1410.00	....	......	....	......	....	......	....	....	705FOB	1136.00
5	200	550	300	705FAC	1410.00	....	......	....	......	....	......	....	....	705FOC	1136.00
6	200	220	600	705GAA	3650.00	....	......	....	......	....	......	....	....	705GOA	3188.00
6	400	440	600	705GAB	3650.00	....	......	....	......	....	......	....	....	705GOB	3188.00
6	400	550	600	705GAC	3650.00	....	......	....	......	....	......	....	....	705GOC	3188.00
7	300	220	900	705HAA	4950.00	....	......	....	......	....	......	....	....	705HOA	4482.00
7	600	440	900	705HAB	4950.00	....	......	....	......	....	......	....	....	705HOB	4482.00
7	600	550	900	705HAC	4950.00	....	......	....	......	....	......	....	....	705HOC	4482.00

Prices for Style RT sizes 00 to 5 include two Type N overload relay heater elements which can be omitted or supplied at $3.00 per pair. Push button station is not included in prices. Starters listed above can be used on 2-phase, 3-wire service. Auxiliary contact kits are available at an additional charge. Oil-immersed starters are also available.

*Non-enclosed contactor rating. †Use size 0.

No. 709 Allen-Bradley A.C. Across-the-Line Starters

600 Volts, 25, 50, 60 Cycles, 3 Phase

For across-the-line starting of polyphase squirrel cage motors and for the primary control of slip-ring motors. Can also be used for self-starting single phase motors.

Particularly suited for controlling high speed automatic machine tools. Extreme compactness adapts them to small machines, on special control panels, or wherever space is limited. Having a low drop-out voltage, they are ideal for refrigeration, air conditioning, and heating installations, and for production machines operating under poor voltage conditions.

Operated by remote control with push-buttons, float switches, or any form of two or three wire pilot device.

Three constructions, Forms 1, 2, and 3 are available with Size 0, 1, 2, and 3 starters in various types of enclosures and also in the open type. Form 1 starter has a Start-Stop push button in the cover, while the Form 3 starter is provided with a Hand-Off-Auto selector switch. Form 2 starter has a plain cover. In size 4 and the higher ratings, only the plain Form 2 is standard, although Forms 1 and 3 can be furnished as special.

Order numbers shown are for 60 cycles. To determine order number for 25 or 50 cycles substitute letter from table below for third letter in the 60 cycle number.

	Volts			
Cycle	110	220	440	550
25	M	J	K	L
50	S	P	Q	R

Form 2—With Reset Button Only in Cover

	Maximum HP. Ratings HP.				N.E.M.A. Type 1 General Purpose		N.E.M.A. Type 4 Watertight Weatherproof		N.E.M.A. Type 5 Dust-Tight		Hazardous Locations N.E.M.A. Type 7 Class 1 Group D		Hazardous Locations N.E.M.A. Type 9 Class 2 Group G		Open Type	
Size No.	Sgl. Phase	3-2 Phase	Volts	*Max. Amps.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1	1½	110	15	709AAD	$39.00	709ACD	$74.00	‡	‡	§	§	709AGD	$74.00	709AOD	$37.00
0	1½	2	220	15	709AAA	39.00	709ACA	74.00	‡	‡	§	§	709AGA	74.00	709AOA	37.00
0	....	3	440	15	709AAB	39.00	709ACB	74.00	‡	‡	§	§	709AGB	74.00	709AOB	37.00
0	....	3	550	15	709AAC	39.00	709ACC	74.00	‡	‡	§	§	709AGC	74.00	709AOC	37.00
1	1½	3	110	25	709BAD	44.00	709BCD	80.00	‡	‡	709BED	$146.00	709BGD	80.00	709BOD	42.00
1	3	5	220	25	709BAA	44.00	709BCA	80.00	‡	‡	709BEA	146.00	709BGA	80.00	709BOA	42.00
1	....	7½	440	25	709BAB	44.00	709BCB	80.00	‡	‡	709BEB	146.00	709BGB	80.00	709BOB	42.00
1	....	7½	550	25	709BAC	44.00	709BCC	80.00	‡	‡	709BEC	146.00	709BGC	80.00	709BOC	42.00
2	3	7½	110	50	709CAD	84.00	709CCD	156.00	709CDD	$128.00	709CED	262.00	709CGD	190.00	709COD	74.00
2	7½	15	220	50	709CAA	84.00	709CCA	156.00	709CDA	128.00	709CEA	262.00	709CGA	190.00	709COA	74.00
2	....	25	440	50	709CAB	84.00	709CCB	156.00	709CDB	128.00	709CEB	262.00	709CGB	190.00	709COB	74.00
2	....	25	550	50	709CAC	84.00	709CCC	156.00	709CDC	128.00	709CEC	262.00	709CGC	190.00	709COC	74.00
3	7½	15	110	100	709DAD	138.00	709DCD	240.00	709DDD	190.00	709DED	372.00	709DGD	284.00	709DOD	118.00
3	15	30	220	100	709DAA	138.00	709DCA	240.00	709DDA	190.00	709DEA	372.00	709DGA	284.00	709DOA	118.00
3	....	50	440	100	709DAB	138.00	709DCB	240.00	709DDB	190.00	709DEB	372.00	709DGB	284.00	709DOB	118.00
3	....	50	550	100	709DAC	138.00	709DCC	240.00	709DDC	190.00	709DEC	372.00	709DGC	284.00	709DOC	118.00
4	....	50	220	150	709EAA	308.00	709ECA	482.00	709EDA	394.00	709EEA	608.00	709EGA	556.00	709EOA	266.00
4	....	100	440	150	709EAB	308.00	709ECB	482.00	709EDB	394.00	709EEB	608.00	709EGB	556.00	709EOB	266.00
4	....	100	550	150	709EAC	308.00	709ECC	482.00	709EDC	394.00	709EEC	608.00	709EGC	556.00	709EOC	266.00
5	....	100	220	300	709FAA	622.00	709FCA	822.00	709FDA	822.00	....	.....	709FGA	958.00	709FOA	552.00
5	....	200	440	300	709FAB	622.00	709FCB	822.00	709FDB	822.00	....	.....	709FGB	958.00	709FOB	552.00
5	....	200	550	300	709FAC	622.00	709FCC	822.00	709FDC	822.00	....	.....	709FGC	958.00	709FOC	552.00
6	....	200	220	600	709GAA	1834.00	709GCA	2362.00	709GDA	2362.00	....	.....	....	.....	709GOA	1488.00
6	....	400	440	600	709GAB	1834.00	709GCB	2362.00	709GDB	2362.00	....	.....	....	.....	709GOB	1488.00
6	....	400	550	600	709GAC	1834.00	709GCC	2362.00	709GDC	2362.00	....	.....	....	.....	709GOC	1488.00
7	....	300	220	900	709HAA	2390.00	709HCA	2918.00	709HDA	2918.00	....	.....	....	.....	709HOA	2044.00
7	....	600	440	900	709HAB	2390.00	709HCB	2918.00	709HDB	2918.00	....	.....	....	.....	709HOB	2044.00
7	....	600	550	900	709HAC	2390.00	709HCC	2918.00	709HDC	2918.00	....	.....	....	.....	709HOC	2044.00

†Form 1—With Start-Stop Button in Cover

Size No.	Sgl. Phase	3-2 Phase	Volts	*Max. Amps.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1	1½	110	15	709AAD1	$47.00	709ACD1	$96.00	‡	‡	§	§	709AGD1	$96.00	709AOD1	$45.00
0	1½	2	220	15	709AAA1	47.00	709ACA1	96.00	‡	‡	§	§	709AGA1	96.00	709AOA1	45.00
0	....	3	440	15	709AAB1	47.00	709ACB1	96.00	‡	‡	§	§	709AGB1	96.00	709AOB1	45.00
0	....	3	550	15	709AAC1	47.00	709ACC1	96.00	‡	‡	§	§	709AGC1	96.00	709AOC1	45.00
1	1½	3	110	25	709BAD1	52.00	709BCD1	102.00	‡	‡	709BED1	$179.00	709BGD1	102.00	709BOD1	50.00
1	3	5	220	25	709BAA1	52.00	709BCA1	102.00	‡	‡	709BEA1	179.00	709BGA1	102.00	709BOA1	50.00
1	....	7½	440	25	709BAB1	52.00	709BCB1	102.00	‡	‡	709BEB1	179.00	709BGB1	102.00	709BOB1	50.00
1	....	7½	550	25	709BAC1	52.00	709BCC1	102.00	‡	‡	709BEC1	179.00	709BGC1	102.00	709BOC1	50.00
2	3	7½	110	50	709CAD1	92.00	709CCD1	178.00	709CDD1	$150.00	709CED1	295.00	709CGD1	212.00	709COD1	82.00
2	7½	15	220	50	709CAA1	92.00	709CCA1	178.00	709CDA1	150.00	709CEA1	295.00	709CGA1	212.00	709COA1	82.00
2	....	25	440	50	709CAB1	92.00	709CCB1	178.00	709CDB1	150.00	709CEB1	295.00	709CGB1	212.00	709COB1	82.00
2	....	25	550	50	709CAC1	92.00	709CCC1	178.00	709CDC1	150.00	709CEC1	295.00	709CGC1	212.00	709COC1	82.00

†Form 3—With Hand-Off-Auto Switch in Cover

Size No.	Sgl. Phase	3-2 Phase	Volts	*Max. Amps.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1	1½	110	15	709AAD3	$47.00	709ACD3	$96.00	‡	‡	§	§	709AGD3	$96.00	709AOD3	$45.00
0	1½	2	220	15	709AAA3	47.00	709ACA3	96.00	‡	‡	§	§	709AGA3	96.00	709AOA3	45.00
0	....	3	440	15	709AAB3	47.00	709ACB3	96.00	‡	‡	§	§	709AGB3	96.00	709AOB3	45.00
0	....	3	550	15	709AAC3	47.00	709ACC3	96.00	‡	‡	§	§	709AGC3	96.00	709AOC3	45.00
1	1½	3	110	25	709BAD3	52.00	709BCD3	102.00	‡	‡	709BED3	$179.00	709BGD3	102.00	709BOD3	50.00
1	3	5	220	25	709BAA3	52.00	709BCA3	102.00	‡	‡	709BEA3	179.00	709BGA3	102.00	709BOA3	50.00
1	....	7½	440	25	709BAB3	52.00	709BCB3	102.00	‡	‡	709BEB3	179.00	709BGB3	102.00	709BOB3	50.00
1	....	7½	550	25	709BAC3	52.00	709BCC3	102.00	‡	‡	709BEC3	179.00	709BGC3	102.00	709BOC3	50.00
2	3	7½	110	50	709CAD3	92.00	709CCD3	178.00	709CDD3	$150.00	709CED3	295.00	709CGD3	212.00	709COD3	82.00
2	7½	15	220	50	709CAA3	92.00	709CCA3	178.00	709CDA3	150.00	709CEA3	295.00	709CGA3	212.00	709COA3	82.00
2	....	25	440	50	709CAB3	92.00	709CCB3	178.00	709CDB3	150.00	709CEB3	295.00	709CGB3	212.00	709COB3	82.00
2	....	25	550	50	709CAC3	92.00	709CCC3	178.00	709CDC3	150.00	709CEC3	295.00	709CGC3	212.00	709COC3	82.00

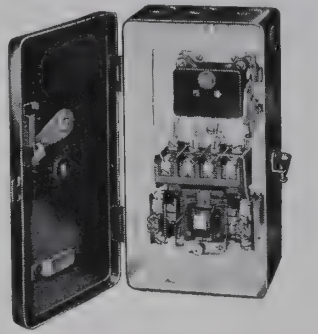
Prices include two Type N overload relay heater elements which can be ommited or supplied at $3.00 per pair. Push button station not included in price of Form 2 starters. Starters listed above can be used on 2 phase, 3-wire service.

Auxiliary contact kits are available at an additional charge. *Non-enclosed contact rating. †Sizes 3, 4, 5, 6 and 7 starters are available in Forms 1 or 3 construction. ‡Use Type 4. §Use size 1.

No. 712 Allen-Bradley A.C. Combination Starters With Disconnect Switches

Form 2—With Unfused Disconnect Switch
Form 2F—With Fused Disconnect Switch

600 Volts, 25, 50, 60 Cycles—3 Phase



Consists of an across-the-line solenoid starter mounted in a cabinet with a front operated disconnect switch, furnished either with fuse clips (Form 2F) or without fuse clips (Form 2).

The disconnect switch consists of an arc hood on which are mounted a pair of stationary contacts per pole, a movable contact bar, and the switch operating the mechanism, all assembled in a substantial steel frame.

The mechanism is tripped by the action of a powerful coil spring connected with the operating lever, causing the switch to close and open with a quick break action. The operating lever has three positions: Off, Open and On. To open the cover the lever must be in the open position, which releases the interlock between lever and disconnect mechanism.

With the N.E.M.A. Type 1, Type 1A, Type 5 and Type 12 enclosures the disconnect unit must be in the open position before the cabinet cover can be opened. The operating lever can be padlocked in the Off position which also prevents opening the cover. Provision is made so that the cabinet cover can be padlocked preventing tampering by unauthorized personnel. Reliable accurate protection against sustained motor overloads is provided by two No. 815 resisto-therm overload relays either of which will open the starting switch when tripped. Pressing a reset button protruding through the cabinet cover resets the overload relays.

Standard 3-phase starters can be used on 2-phase, 3-wire service.

Prices include one pair of Type N overload relay heater elements which can be omitted or supplied at $3.00 per pair. Prices do not include push button stations or fuses.

Order numbers shown are for 60 cycles. To determine order numbers for 25 or 50 cycle starters, substitute letter from table below for the third letter in the 60 cycle order number.

	Volts		
Cycles	220	440	550
25	J	K	L
50	P	Q	R

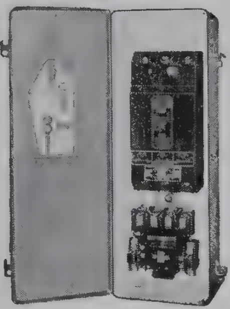
Size No.	Maximum HP. —Ratings— Hp.	Volts	*Max. Amps.	†Fuse Clip Rating Amps.	N.E.M.A. Type 1 —General Purpose— No.	Each	N.E.M.A. Type 1A Semp-Dust-Tight No.	Each	N.E.M.A. Type 4 Watertight. —Weatherproof— No.	Each	N.E.M.A. Type 5 —Dust-Tight— No.	Each	‡N.E.M.A. Type 12 —Industrial— No.	Each
0	2	220	15	None	712AAA	$83.00	712ABA	$93.00	§	§	§	§	§	§
0	2	220	15	30	712AAA24	85.00	712ABA24	95.00	§	§	§	§	§	§
0	3	440	15	None	712AAB	83.00	712ABB	93.00	§	§	§	§	§	§
0	3	440	15	30	712AAB24	99.00	712ABB24	109.00	§	§	§	§	§	§
0	3	550	15	None	712AAC	83.00	712ABC	93.00	§	§	§	§	§	§
0	3	550	15	30	712AAC24	99.00	712ABC24	109.00	§	§	§	§	§	§
1	5	220	25	None	712BAA	88.00	712BBA	98.00	712BCA	$184.00	712BDA	$126.00	712BJA	$112.00
1	5	220	25	30	712BAA24	90.00	712BBA24	100.00	712BCA24	186.00	712BDA24	128.00	712BJA24	114.00
1	5	220	25	60	712BAA25	101.00	712BBA25	111.00	712BCA25	197.00	712BDA25	139.00	712BJA25	125.00
1	7½	440	25	None	712BAB	88.00	712BBB	98.00	712BCB	184.00	712BDB	126.00	712BJB	112.00
1	7½	440	25	30	712BAB24	104.00	712BBB24	114.00	712BCB24	200.00	712BDB24	142.00	712BJB24	128.00
1	7½	550	25	None	712BAC	88.00	712BBC	98.00	712BCC	184.00	712BDC	126.00	712BJC	112.00
1	7½	550	25	30	712BAC24	104.00	712BBC24	114.00	712BCC24	200.00	712BDC24	142.00	712BJC24	128.00
2	15	220	50	None	712CAA	154.00	712CBA	170.00	712CCA	302.00	712CDA	206.00	712CJA	188.00
2	15	220	50	60	712CAA25	156.00	712CBA25	172.00	712CCA25	304.00	712CDA25	208.00	712CJA25	190.00
2	15	220	50	100	712CAA26	175.00	712CBA26	191.00	712CCA26	323.00	712CDA26	227.00	712CJA26	209.00
2	25	440	50	None	712CAB	154.00	712CBB	170.00	712CCB	302.00	712CDB	206.00	712CJB	188.00
2	25	440	50	60	712CAB25	162.00	712CBB25	178.00	712CCB25	310.00	712CDB25	214.00	712CJB25	196.00
2	25	440	50	100	712CAB26	183.00	712CBB26	199.00	712CCB26	331.00	712CDB26	235.00	712CJB26	217.00
2	25	550	50	None	712CAC	154.00	712CBC	170.00	712CCC	302.00	712CDC	206.00	712CJC	188.00
2	25	550	50	60	712CAC25	162.00	712CBC25	178.00	712CCC25	310.00	712CDC25	214.00	712CJC25	196.00
2	25	550	50	100	712CAC26	183.00	712CBC26	199.00	712CCC26	331.00	712CDC26	235.00	712CJC26	217.00
3	30	220	100	None	712DAA	240.00	712DBA	262.00	712DCA	498.00	712DDA	306.00	712DJA	284.00
3	30	220	100	200	712DAA27	272.00	712DBA27	294.00	712DCA27	530.00	712DDA27	338.00	712DJA27	316.00
3	50	440	100	None	712DAB	240.00	712DBB	262.00	712DCB	498.00	712DDB	306.00	712DJB	284.00
3	50	440	100	100	712DAB26	252.00	712DBB26	274.00	712DCB26	510.00	712DDB26	318.00	712DJB26	296.00
3	50	440	100	200	712DAB27	292.00	712DBB27	314.00	712DCB27	550.00	712DDB27	358.00	712DJB27	336.00
3	50	550	100	None	712DAC	240.00	712DBC	262.00	712DCC	498.00	712DDC	306.00	712DJC	284.00
3	50	550	100	100	712DAC26	252.00	712DBC26	274.00	712DCC26	510.00	712DDC26	318.00	712DJC26	296.00
3	50	550	100	200	712DAC27	292.00	712DBC27	314.00	712DCC27	550.00	712DDC27	358.00	712DJC27	336.00
4	50	220	150	None	712EAA	476.00	712EBA	514.00	712ECA	806.00	712EDA	682.00	712EJA	598.00
4	50	220	150	400	712EAA28	590.00	712EBA28	628.00	712ECA28	920.00	712EDA28	796.00	712EJA28	712.00
4	100	440	150	None	712EAB	476.00	712EBB	514.00	712ECB	806.00	712EDB	682.00	712EJB	598.00
4	100	440	150	200	712EAB27	512.00	712EBB27	550.00	712ECB27	842.00	712EDB27	718.00	712EJB27	634.00
4	100	440	150	400	712EAB28	620.00	712EBB28	658.00	712ECB28	950.00	712EDB28	826.00	712EJB28	742.00
4	100	550	150	None	712EAC	476.00	712EBC	514.00	712ECC	806.00	712EDC	682.00	712EJC	598.00
4	100	550	150	200	712EAC27	512.00	712EBC27	550.00	712ECC27	842.00	712EDC27	718.00	712EJC27	634.00
4	100	550	150	400	712EAC28	620.00	712EBC28	658.00	712ECC28	950.00	712EDC28	826.00	712EJC28	742.00
5	100	220	300	None	712FAA	998.00	712FBA	1064.00	712FCA	1840.00	712FDA	1524.00	712FJA	1294.00
5	100	220	300	600	712FAA29	1133.00	712FBA29	1199.00	712FCA29	1975.00	712FDA29	1659.00	712FJA29	1429.00
5	200	440	300	None	712FAB	998.00	712FBB	1064.00	712FCB	1840.00	712FDB	1524.00	712FJB	1294.00
5	200	440	300	400	712FAB28	1034.00	712FBB28	1100.00	712FCB28	1876.00	712FDB28	1560.00	712FJB28	1330.00
5	200	440	300	600	712FAB29	1175.00	712FBB29	1241.00	712FCB29	2017.00	712FDB29	1701.00	712FJB29	1471.00
5	200	550	300	None	712FAC	998.00	712FBC	1064.00	712FCC	1840.00	712FDC	1524.00	712FJC	1294.00
5	200	550	300	400	712FAC28	1034.00	712FBC28	1100.00	712FCC28	1876.00	712FDC28	1560.00	712FJC28	1330.00
5	200	550	300	600	712FAC29	1175.00	712FBC29	1241.00	712FCC29	2017.00	712FDC29	1701.00	712FJC29	1471.00

*Non-enclosed contactor rating. †Prices do not include fuses. Fuse size should be selected in accordance with Article 430 of the National Electrical Code on the basis of the actual current rating of the motor. ‡Prices do not include control circuit transformer. §Use Size 1. Auxiliary contact kits are available at an additional charge. Open type starters: deduct from N.E.M.A. Type 1 prices; Size 0 and 1, $4.00; Size 2, $11.00; Size 3, $19.00; Size 4, $22.00.

No. 713 Allen-Bradley A.C. Combination Starters

Form 2—With Circuit Breaker

600 Volts, 25, 50, 60 Cycles—3-Phase



Designed for applications where it is advantageous to use a circuit breaker rather than a disconnect and fuses. An ITE magnetic trip circuit breaker is mounted with an across-the-line starter. The circuit breaker opens instantaneously when the current equals or exceeds the instantaneous trip rating of the circuit breaker, and thus opens all lines to the motor.

Starters are 3-pole. When used on 2 phase, 4-wire service one line will have to run direct to the motor.

Prices include two Type N overload relay heater elements which can be omitted or supplied at $3.00 per pair. Push button station not included in prices.

Order numbers shown are for 60 cycles. To determine order numbers for 25 or 50 cycle starters substitute letter from table below for third letter in the 60 cycle order number.

	Volts		
Cycles	220	440	550
25	J	K	L
50	P	Q	R

Order number is not complete. To complete add code number from table below. Code number indicates horsepower rating.

Hp.	Code No.	Hp.	Code No.	Hp.	Code No.	Hp.	Code No.
1	61	7½	66	30	71	100	76
1½	62	10	67	40	72	125	77
2	63	15	68	50	73	150	78
3	64	20	69	60	74	200	79
5	65	25	70	75	75	...	..

	Maximum Hp. —Ratings—			†Circuit Breaker Frame Size	N.E.M.A. Type 1 —General Purpose—		N.E.M.A. Type 1A Semi- —Dust-Tight—		N.E.M.A. Type 4 Watertight —Weatherproof—		N.E.M.A. Type 5 —Dust-Tight—		‡N.E.M.A. Type 12 —Industrial—	
Size No.	Hp.	Volts	*Max. Amps.	Amps.	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	2	220	15	50	713AAA99	$101.00	713ABA99	$111.00	§	§	§	§	§	§
0	2	220	15	100	713AAA	130.00	713ABA	140.00	§	§	§	§	§	§
0	3	440	15	100	713AAB	130.00	713ABB	140.00	§	§	§	§	§	§
0	3	550	15	100	713AAC	130.00	713ABC	140.00	§	§	§	§	§	§
1	5	220	25	50	713BAA99	106.00	713BBA99	116.00	713BCA99	$202.00	713BDA99	$144.00	713BJA99	$130.00
1	5	220	25	100	713BAA	135.00	713BBA	145.00	713BCA	231.00	713BDA	173.00	713BJA	159.00
1	7½	440	25	100	713BAB	135.00	713BBB	145.00	713BCB	231.00	713BDB	173.00	713BJB	159.00
1	7½	550	25	100	713BAC	135.00	713BBC	145.00	713BCC	231.00	713BDC	173.00	713BJC	159.00
2	15	220	50	50	713CAA99	161.00	713CBA99	177.00	713CCA99	309.00	713CDA99	213.00	713CJA99	195.00
2	15	220	50	100	713CAA	190.00	713CBA	206.00	713CCA	338.00	713CDA	242.00	713CJA	224.00
2	25	440	50	100	713CAB	190.00	713CBB	206.00	713CCB	338.00	713CDB	242.00	713CJB	224.00
2	25	550	50	100	713CAC	190.00	713CBC	206.00	713CCC	338.00	713CDC	242.00	713CJC	224.00
3	30	220	100	100	713DAA	275.00	713DBA	297.00	713DCA	533.00	713DDA	341.00	713DJA	319.00
3	50	440	100	100	713DAB	275.00	713DBB	297.00	713DCB	533.00	713DDB	341.00	713DJB	319.00
3	50	550	100	100	713DAC	275.00	713DBC	297.00	713DCC	533.00	713DDC	341.00	713DJC	319.00
4	50	220	150	225	713EAA	600.00	713EBA	638.00	713ECA	930.00	713EDA	806.00	713EJA	722.00
4	100	440	150	225	713EAB	600.00	713EBB	638.00	713ECB	930.00	713EDB	806.00	713EJB	722.00
4	100	550	150	225	713EAC	600.00	713EBC	638.00	713ECC	930.00	713EDC	806.00	713EJC	722.00
5	100	220	300	600	713FAA	1405.00	713FBA	1471.00	713FCA	2247.00	713FDA	1931.00	713FJA	1701.00
5	200	440	300	600	713FAB	1405.00	713FBB	1471.00	713FCB	2247.00	713FDB	1931.00	713FJB	1701.00
5	200	550	300	600	713FAC	1405.00	713FBC	1471.00	713FCC	2247.00	713FDC	1931.00	713FJC	1701.00
6	200	220	600	600	713GAA	2917.00	713GBA	3037.00	713GCA	3303.00	713GDA	3263.00	713GJA	3150.00
6	400	440	600	600	713GAB	2917.00	713GBB	3037.00	713GCB	3303.00	713GDB	3263.00	713GJB	3150.00
6	400	550	600	600	713GAC	2917.00	713GBC	3037.00	713GCC	3303.00	713GDC	3263.00	713GJC	3150.00

*Non-enclosed contactor rating.

†Circuit breakers of the 100 and 225 ampere frame size have an interrupting capacity of 15,000 amperes. Circuit breakers of the 50 ampere frame size have an interrupting capacity of 5,000 amperes. The 600 ampere frame size has an interrupting capacity of 25,000 amperes.

‡Prices do not include control circuit transformer.

Auxiliary contact kits are available at an additional charge.

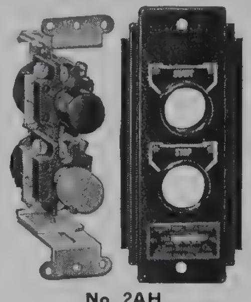
§Use size 1.

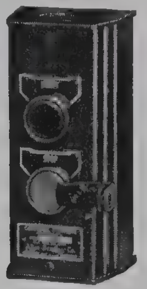
No. 800 Allen Bradley Heavy Duty Push Buttons

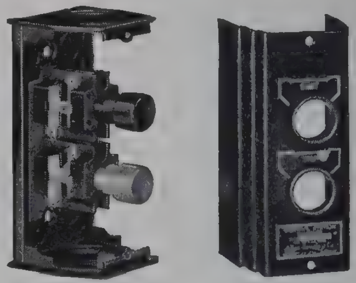
Maximum Ratings: A.C.—6 Amp., 110V.; 3 Amp., 220V.; 1.5 Amp., 440V.; 1.2 Amp., 550V.
D.C.—2.2 Amp., 115V.; 1.1 Amp., 230V.; 0.4 Amp., 550V.

No. 2HA4
Watertight-Dust-Tight

No. 2HA7A
Class 1, Group D


No. 2AH
Flush Mounting


No. 2HAW


No. 2HA

Consists of push buttons, selector switches, and pilot lights, alone or combined, in assemblies of from 1 to 8 units. More than 8 units available to specification.

Push button unit is momentary contact type and has one set of normally closed contacts and one set of normally open. Contacts are double break, silver alloy type. Button and operating shank are of one-piece molded bakelite. Selector switch units are of the maintained contact type, with either two or three control positions. Stationary contacts and terminals are mounted in a bakelite block. Switch position is indicated by an arrow molded on operating knob. Knob and shaft are a one-piece silver alloy type. Necessary contact pressure is provided by springs. Pilot light units used with control stations are made in several types. For 110-volt applications, a 120 volt, 6-watt S-6 Mazda bulb is used. For 220 volt applications, a 120-volt lamp and a resistor combination is used. Unit used on 440 and 550 volts consists of a small transformer and a 6-volt bulb.

General purpose NEMA Type 1 stations are for surface mounting, flush mounting and plaster wall mounting. Has conduit knockouts in top, bottom and in back of base.

NEMA Type 4 heavy duty are water-tight and weather-proof in construction. Made of cast iron with a rubber gasket between the enclosure and base. Bases are tapped for conduit at top and bottom.

For Class I, Group D, hazardous locations, NEMA Type 7 enclosure is used. Made of cast iron with a wide flanged machine surface between cover and base. Conduit openings are provided at top and bottom of enclosure.

Button Marking	Contacts NO-NC	NEMA Type 1		NEMA Type 4		NEMA Type 7		Flush Panel Mounting	
		No.	Each	No.	Each	No.	Each	No.	Each
1 Button Station									
Stop	1	1HA	$11.00	1HA4	$23.00	1HA7A	$27.00	1AH	$11.00
Stop (With Locking Bar)	1	1HAW	14.00	—	—	—	—	1AHW	14.00
Stop (With Mushroom Head)	1	1HAG	14.00	—	—	—	—	1AHG	14.00
Start	1	1HB	11.00	1HB4	23.00	1HB7A	27.00	1BH	11.00
Start (With Pilot Light 220 V. Max.)	1	1HBP	22.00	1HBP4	31.00	—	—	1BHP	22.00
Start (With Pilot Light 550 V. Max.)	1	1HBY	25.50	1HBY4	34.50	—	—	1BHY	25.50
Open	1	1HC	11.00	1HC4	23.00	1HC7A	27.00	1CH	11.00
Close	1	1HD	11.00	1HD4	23.00	1HD7A	27.00	1DH	11.00
Forward	1	1HE	11.00	1HE4	23.00	1HE7A	27.00	1EH	11.00
Reverse	1	1HF	11.00	1HF4	23.00	1HF7A	27.00	1FH	11.00
Jog	1	1HJ	11.00	1HJ4	23.00	1HJ7A	27.50	1JH	11.00
2 Button Stations									
Start—Stop	2	2HA	$17.00	2HA4	$26.00	2HA7A	$30.00	2AH	$17.00
Start—Stop (Locking Bar on Stop)	2	2HAW	20.00	—	—	—	—	2AHW	20.00
Start—Stop (Mushroom Head on Stop)	2	2HAG	20.00	—	—	—	—	2AHG	20.00
Start—Stop (With Pilot Light 220 V. Max.)	2	2HAP	27.00	2HAP4	49.00	—	—	2AHP	27.00
Start—Stop (With Pilot Light 550 V. Max.)	2	2HAY	30.50	2HAY4	52.50	—	—	2AHY	30.50
Start—Stop (With 2 Pilot Lights 220 V. Max.)	2	2HA2P	46.00	2HA2P4	63.00	—	—	2AH2P	46.00
Start—Stop (With 2 Pilot Lights 550 V. Max.)	2	2HA2Y	53.00	2HA2Y4	70.00	—	—	2AH2Y	53.00
Start—Stop (Maintained Contact)	2	2HAM	17.00	2HAM4A	26.00	2HAM7A	30.00	2AHM	17.00
Forward—Reverse	2	2HB	17.00	2HB4	26.00	2HB7A	30.00	2BH	17.00
Fast—Slow	2	2HE	17.00	2HE4	26.00	2HE7A	30.00	2EH	17.00
Open—Close	2	2HF	17.00	2HF4	26.00	2HF7A	30.00	2FH	17.00
3 Button Stations									
Forward—Reverse—Stop	3	3HA	$22.00	3HA4	$44.00	3HA7	$58.00	3AH	$22.00
Raise—Lower—Stop	3	3HB	22.00	3HB4	44.00	3HB7	58.00	3BH	22.00
Up—Down—Stop	3	3HC	22.00	3HC4	44.00	3HC7	58.00	3CH	22.00
Open—Close—Stop	3	3HD	22.00	3HD4	44.00	3HD7	58.00	3DH	22.00
High—Low—Stop	3	3HE	22.00	3HE4	44.00	3HE7	58.00	3EH	22.00
Fast—Slow—Stop	3	3HF	22.00	3HF4	44.00	3HF7	58.00	3FH	22.00
Forward—Reverse—Stop (With 2 Pilot Lights 220 V. Max.)	3	3HA2P	54.00	—	—	—	—	3AH2P	54.00
Forward—Reverse—Stop (With 2 Pilot Lights 550 V. Max.)	3	3HA2Y	61.00	—	—	—	—	3AH2Y	61.00
4 Button Stations									
Full Speed—2nd Speed—Low Speed—Stop	4	4HA	$36.00	4HA4	$53.00	—	—	4AH	$36.00
High—Second—Low—Stop	4	4HB	36.00	4HB4	53.00	—	—	4BH	36.00
Fast—Slow—Start—Stop	4	4HD	36.00	4HD4	53.00	—	—	4DH	36.00
5 Button Stations									
Full Speed—3rd Speed—2nd Speed—Low Speed—Stop	5	5HA	$44.00	5HA4A	$88.00	—	—	5AH	$44.00
2 Position Selector Switches									
Hand—Auto	S.P.D.T.	R2HA	$14.00	R2HA4	$26.00	—	—	RH2A	$14.00
Off—On	D.P.S.T.	R3HC	14.00	R3HC4	26.00	—	—	RH3C	14.00
Jog—Run	S.P.D.T.	R2HK	14.00	R2HK4	26.00	—	—	RH2K	14.00
3 Position Selector Switches									
Hand—Off—Auto	S.P.D.T.	R4HA	$14.00	R4HA4	$26.00	—	—	RH4A	$14.00
Forward—Off—Reverse	S.P.D.T.	R4HB	14.00	R4HB4	26.00	—	—	RH4B	14.00

Other types of push buttons and selector switches are available on request.

No. 800 Allen-Bradley Standard Duty Push Buttons

Maximum Ratings: A.C.—3 Amp., 110V.; 2 Amp., 220V.; 1 Amp., 440-550V.

D.C.—1 Amp., 115V.; 0.5 Amp., 230V.; 0.2 Amp., 550V.

A Representative Group of Standard Duty Surface and Flush Mounted Push Button Stations and Selector Switches

Available with 1, 2 or 3 buttons. Two and three position standard duty selector switches are also shown. The standard duty 1, 2 and 3 button push button mechanism is of a single circuit momentary contact type and includes double break, silver alloy contacts, either normally open or normally closed. All contacts are enclosed on four sides by a molded bakelite block which protects them from interference and physical injury. The NEMA Type 1 general purpose enclosure for surface mounting consists of a die cast base with open sides and a U-shaped molded bakelite cover that forms the front and both sides of the enclosure.

No. 2SA Two-Button Standard Duty Station Metal or Bakelite Cover

This construction, while not dust-tight, provides unusual dust and dirt protection for the push button mechanism. The bakelite buttons are 1 inch in diameter with the markings molded in the face.

NEMA Type 4 watertight and weatherproof stations are available for surface mounting and flush mounting.

NEMA Type 7 enclosures for Class 1, Group D, hazardous gas locations are available.

All standard duty stations can be provided with a locking bar for holding the stop button in its open position.

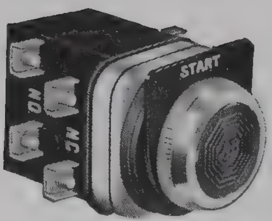
Button Marking	Contacts NO	Contacts NC	*NEMA Type 1 No.	*NEMA Type 1 Each	†NEMA Type 4 No.	†NEMA Type 4 Each	†NEMA Type 7 No.	†NEMA Type 7 Each	Flush Panel Mounting No.	Flush Panel Mounting Each
1-Button Station										
Stop	.	1	1SA	$6.00	1SA4	$19.00	1SA7	$23.00	1AS	$7.50
Stop	1	.	1SAK	6.00	1SAK4	19.00	1SAK7	23.00	1ASK	7.50
Stop (Locking Bar on Stop)	.	1	1SAW	9.00	1SA4W	22.00	1SA7W	26.00	1ASW	10.50
Start	1	.	1SB	6.00	1SB4	19.00	1SB7	23.00	1BS	7.50
Open	1	.	1SC	7.50	1SC4	19.00	1SC7	23.00	1CS	9.00
Close	1	.	1SD	7.50	1SD4	19.00	1SD7	23.00	1DS	9.00
Forward	1	.	1SE	7.50	1SE4	19.00	1SE7	23.00	1ES	9.00
Reverse	1	.	1SF	7.50	1SF4	19.00	1SF7	23.00	1FS	9.00
Reset	1	.	1SG	7.50	1SG4	19.00	1SG7	23.00	1GS	9.00
2-Button Stations										
Start—Stop	1	1	2SA	$6.00	2SA4	$19.00	2SA7	$23.00	2AS	$7.50
Start—Stop (With Pilot Light 220V. Max.)	1	1	2SAP	22.00						
Start—Stop Locking (Bar on Stop)	1	1	2SAW	9.00	2SA4W	22.00	2SA7W	26.00	2ASW	10.50
Forward-Reverse	2	.	2SB	7.50	2SB4	19.00	2SB7	23.00	2BS	9.00
Up—Down	2	.	2SC	7.50	2SC4	19.00	2SC7	23.00	2CS	9.00
Raise—Lower	2	.	2SD	7.50	2SD4	19.00	2SD7	23.00	2DS	9.00
Open—Close	2	.	2SF	7.50	2SF4	19.00	2SF7	23.00	2FS	9.00
In—Out	2	.	2SJ	7.50	2SJ4	19.00	2SJ7	23.00	2JS	9.00
3-Button Stations										
Forward—Reverse—Stop	2	1	3SA	$12.00					3AS	$13.00
Raise—Lower—Stop	2	1	3SB	12.00					3BS	13.00
Up—Down—Stop	2	1	3SC	12.00					3CS	13.00
Open—Close—Stop	2	1	3SD	12.00					3DS	13.00
2-Position Selector Switch										
Hand—Auto	1 Pole Double Throw		R1SA	$6.00					RS1A	$7.50
Forward—Reverse			R1SB	6.00					RS1B	7.50
Off—On			R1SC	6.00					RS1C	7.50
Open—Close			R1SG	6.00					RS1G	7.50
3-Position Selector Switch										
Hand—Off—Auto	1 Pole Double Throw		R4SA	$6.00					RS4A	$7.50
Forward—Off—Reverse			R4SB	6.00					RS4B	7.50
Open—Off—Close			R4SF	6.00					RS4F	7.50

*All one and two-unit push button stations can be supplied with a metal cover in place of the bakelite cover at no extra cost. If metal cover is wanted, add suffix A to No.

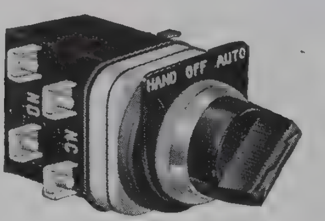
†Button operated stations are standard. If thumb operated stations are wanted, add Suffix A to No. Furnished at no extra cost.

Other types of push buttons and selector switches are available on request.

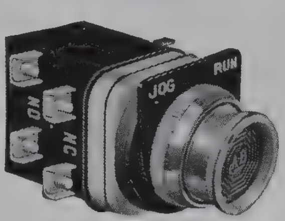
No. 800T Allen-Bradley Oiltight Units and Stations



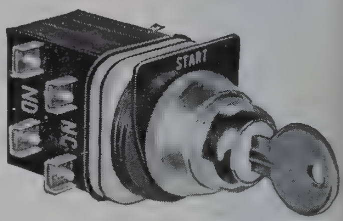
Push-Button Unit



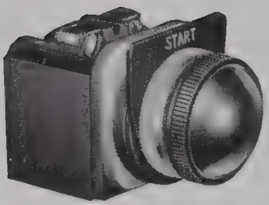
Selector Switch Unit



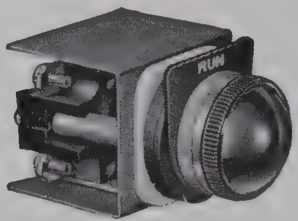
Jogging Button Unit



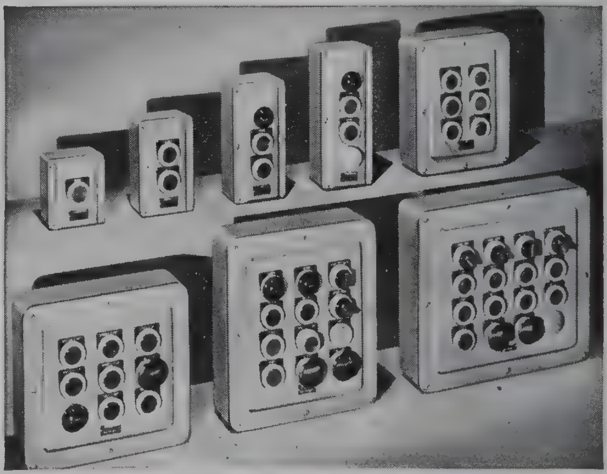
Push-Button Unit with Cylinder Lock



Transformer Type Pilot Light

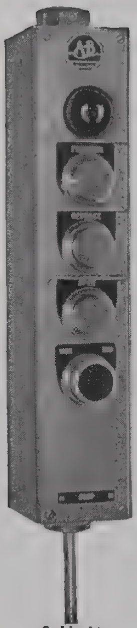


Full Voltage Type Pilot Light



Oiltight Control Station

Oiltight Control Units



6-Unit Pendent Station

Used as pilot controls for both a.c. and d.c. magnetic contractors and motor control apparatus. Primarily for machine tool work, where presence of cutting fluids and oil requires unit having more protection than is provided by standard general purpose control units. Unit consists of two major parts, identified as operator and contact block. Available separately or as an assembly.

Body of operators is die casting; operating buttons molded bakelite and locking rings turned from aluminum tubing. Oiltight seal between panel and operator is obtained by means of one or more oil-resistant washers; oil-resistant synthetic rubber cup provides oil seal between operating shaft and body of operator. Changing number or thickness of synthetic rubber washers compensates for various panel thicknesses. Standard with rubber gaskets suitable for 10 or 12-gage panels, but can adjust for mountings on $\frac{1}{16}$, $\frac{3}{16}$ or $\frac{1}{4}$-inch panels. Thicker panels must be counterbored. In momentary or maintained contact push-buttons, 2 and 3-position selector switches, jogging buttons and pilot lights.

Push-button styles: start type with bakelite button flush with locking ring; stop button has bakelite button extending beyond locking ring, making it suitable for use as stop button; push-button unit with mushroom head also available. Push-buttons with cylinder lock used where button must be made inoperative for safety, etc. Jogging button combines function of push-button and selector switch. With sleeve around button turned to right, button functions normally. When turned to left, bakelite button is partially depressed, normally closed contacts are open and in this position remain open. Pressing button merely closes normally open contact and has no effect on normally closed contact.

Standard nameplate with each control unit. Maintained contact push-button unit with two nameplates. Additional nameplates with the following standard markings are available; auto-off-hand; close; down; emerg.-stop; fast; for-rev.; for-off-rev.; forward; hand-auto; hand-off-auto; high; high-low; in; inch; jog; jog-for.; jog-rev.; jog-run; jog-safe-run; low; lower; off; off-on; on; open; open-close; out; open-off-close; raise; reset; reverse; run; run-jog; safe-run; slow; start; start-jog; start-stop; stop; up; up-down; up-off-down. Special nameplates available.

Oiltight Control Stations. Available for surface or flush mounting. Any combination of oiltight control units can be assembled into complete oiltight control station for surface or flush mounting. Station can be used for vertical or horizontal mounting. Change from vertical to horizontal mounting can be made in field. Vertical mounting is standard and supplied unless otherwise ordered.

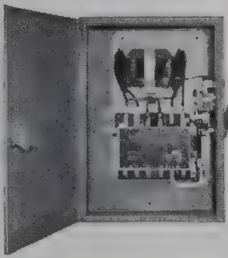
Completely assembled with individual oiltight control units; or enclosures and enclosure cover plates can be purchased separately.

Pendent type oiltight control stations for use as portable control or for suspension above machine where it may be easily reached while operator is near his work. In sizes with 3 units, including stop, to 10 units, including stop. Standard stop unit is wobble stick in bottom of enclosure. However, stop unit can also be furnished as mushroom head mounted in bottom or in front of enclosure. Specify on order. All enclosures with oiltight control units. Synthetic rubber gasket under cover makes unit oiltight. Bushing with $\frac{3}{4}$-in. p.t. on stations of 5 units or less; 1-in. p.t. on stations of more than 5 units. All enclosures have cable anchor at top. Each push-button unit with normally open and normally closed contact and nameplate with standard marking listed above. Special stations and nameplates on special order.

Type MB Westinghouse A.C. Manual Reduced Voltage Starters

Class 10-600—Non-Reversing

5 to 250 Hp.—220, 440 and 550 Volts, 2 and 3 Phase
25, 50 and 60 Cycles



For use wherever across-the-line starting current of squirrel-cage induction motors is likely to exceed local power company restrictions or interference with plant operations. The use of air break contacts for all ratings and time sequencing with visual signals assures smooth, trouble-free operation. Motor protection is accomplished by type MW overload relays.

Furnished in a shallow, wall mounted NEMA 1 general purpose enclosure with all components front mounted on a steel panel.

Auto-transformer with taps for starting voltages of 65 per cent and 80 per cent of the line voltage are available on all sizes. Starters larger than 50 hp. also provide a 50 per cent tap.

Accessory equipment including time delay low voltage protection, electrical interlocks, ammeters, third overload relay, NEMA 4 water-tight enclosure, NEMA 5 dust-tight enclosure, and NEMA 9 class 2 group G enclosure can be supplied.

When ordering, specify class number, style No. (add prefix 1747; ex., 1747 331), horsepower, voltage, frequency, phase, heaters (enter as separate item by style number) and accessories.

220 Volts

	60 or 50 Cycles						25 Cycles				
		Style Nos. 3-Ph.		Style Nos. 2-Ph.				Style Nos.			
Hp.	Size No.	60-Cy.	50-Cy.	60-Cy.	*With Heaters Each	Approx. Wt. Lb.	Size No.	3-Ph.	2-Ph.	*With Heaters Each	Approx. Wt. Lb.
5–15	2	331	332	330	$341.	115	2	334	333	$357.	115
20–25	3	222	224	220	357.	153	†3	279	278	372.	153
30	3	223	225	221	370.	153	†3	281	280	671.	153
40–50	4	244	247	241	645.	305	4	253	250	696.	305
60–75	5	245	248	242	695.	350	5	254	251	755.	350
100–125	5L	246	249	243	1050.	400	5L	255	252	1150.	400

‡440 Volts

	60 or 50 Cycles						25 Cycles				
		Style Nos. 3-Ph.		Style Nos. 2-Ph.				Style Nos.			
Hp.	Size No.	60-Cy.	50-Cy.	60-Cy.	*With Heaters Each	Approx. Wt. Lb.	Size No.	3-Ph.	2-Ph.	*With Heaters Each	Approx. Wt. Lb.
5–15	2	340	337	335	$341.	115	2	233	232	$357.	115
20–25	2	228	230	226	357.	115	†3	284	283	372.	153
30	3	229	231	227	370.	153	†3	286	285	671.	153
40–50	3	339	282	336	390.	153	†3	349	348	696.	153
60–100	4	259	262	256	695.	305	4	266	265	755.	305
125–150	5	260	263	257	755.	350	5L	345	344	1150.	400
200–250	5L	261	264	258	1150.	400	...	...	...	.....	....

550 Volts

	60 or 50 Cycles						25 Cycles				
		Style Nos. 3-Ph.		Style Nos. 2-Ph.				Style Nos.			
Hp.	Size No.	60-Cy.	50-Cy.	60-Cy.	*With Heaters Each	Approx. Wt. Lb.	Size No.	3-Ph.	2-Ph.	*With Heaters Each	Approx. Wt. Lb.
5–15	2	353	354	352	$341.	115	2	240	239	$357.	115
20–25	2	236	238	234	357.	115	†3	288	287	372.	153
30	3	237	343	235	370.	153	†3	290	289	671.	153
40–50	3	342	355	341	390.	153	†3	351	350	696.	153
60–100	4	270	273	267	695.	305	4	277	276	755.	305
125–150	5	271	274	268	755.	350	5L	347	346	1150.	400
200–250	5L	272	275	269	1150.	400	...	...	...	.....	...

*Omission or separate selling price, $1.50 each.

†Size 4 enclosure.

‡For 380 volts, 50 cycles, add 5 per cent to 440 volts, 60 cycle price.

No. 350 Allen-Bradley Reversing Drum Switches

A.C.—D.C.

Size 1, Surface Mounting, with Ball Lever Handle

For across-the-line starting and reversing of squirrel cage motors. Can be used with single phase motors that are designed for reversing service and for direct current shunt and compound wound motors.

Sizes 00 and 0, Style A are designed to break all the lines on 3-phase motors and three of the lines on 2-phase, 4-wire motors. On d.c. motors both sides of the armature lines and one side of the field are broken. Sizes 0 and 1, Style B are so constructed that they break all the lines to 2-phase or 3-phase motors. When used with a d.c. motor will break both sides of the armature and field circuits. Sizes 2 and 3 are of 3-pole construction so that when used with an a.c. motor will open three lines. When used with a d.c. motor, will open the armature circuit and one side of the field circuit. A 4-pole drum is available in the size 2 construction which will open all four lines when used with 2-phase, 4-wire a.c. motors or both sides of the shunt field on d.c. motors.

Supplied as standard in the non-spring return (non-self centering) construction. Sizes 00 and 0, Style A can be supplied in spring return (self centering) construction. Size 0, Style B and Size 1 can be changed in the field to spring return (self-centering). Ball lever handles are standard on all sizes. Sizes 2 and 3 can be supplied for rope operation.

Interlocks

Available with a variety of interlock contacts for use with magnetic starters: **Type R** provides low voltage protection and makes it necessary to bring drum to Off position after a voltage failure. **Type K** consists of two contacts, one closing in Forward position and one in Reverse. This type provides low voltage release. **Type PP** is a push-pull interlock which provides the equivalent of 3-wire push button control. Pushing the handle down drops out the magnetic starter and permits drum switch to be moved to the other position. Magnetic starter will not reclose until drum switch handle is pulled up slightly. **Type W** is arranged to close a magnetic starter after the power circuit is closed in Forward or Reverse position.

	Maximum Hp. Rating									
	Sgl. Phase Volts		2 or 3-Phase Volts			D.C. Volts				
Size No.	110	220	110	220	440-550	115	230	Style	Type of Interlock	*N.E.M.A. Type 1 Enclosure Surface or Panel Mounting Each
00	¾	¾	¾	¾	¾	⅛	⅛	‖A	None	$11.00
0	1	1½	1½	2	2	¼	¼	‖A	None	13.00
0	1	1½	1½	2	2	¼	¼	BR	R	27.00
0	1	1½	1½	2	2	¼	¼	BK	K	27.00
0	1	1½	1½	2	2	¼	¼	BPP	PP	29.00
1	1½	3	3	5	7½	†2	†2	B	None	33.00
1	1½	3	3	5	7½	†2	†2	BR	R	53.00
1	1½	3	3	5	7½	†2	†2	BK	K	53.00
1	1½	3	3	5	7½	†2	†2	BPP	PP	57.00
2	...	...	...	10	10	‡3	‡3	C	None	¶96.00
2	...	...	...	10	10	‡3	‡3	CR	R	¶118.00
2	...	...	...	10	10	‡3	‡3	CW	W	¶118.00
§3	...	...	...	20	40	...	...	CR	R	176.00
§3	...	...	...	20	40	...	...	CW	W	176.00

*The standard Size 00 and 0, Style A and B switches are suitable for either surface mounting or flush mounting on a panel up to ¼-inch thick. †Size 1 d.c. switches are equipped with permanent magnet blowouts. ‡For d.c. motors larger than 2-hp. a ballast resistor must be connected in the armature circuit to limit current inrush to about 25 amperes. §Ratings up to and including 10 hp. are suitable for switching the motor circuit directly on the drum circuit. All ratings above 10 hp. require an automatic starter for switching the motor circuit. ‖Style A, maintained contact type (non-self centering) is supplied as standard unless otherwise specified. Other styles available at no extra charge are: Style A1, self-centering; Style A2, spring return from Reverse to Off; Style A3, spring return from Forward to Off. ¶Prices shown are for a 3-pole drum. A 4-pole drum without interlock is available at $130.00.

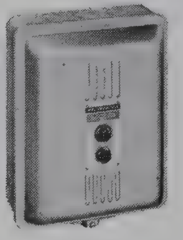
Westinghouse A.C. Magnetic Non-Reversing Life-Linestarters

Class 11-200

110 to 600 Volts—60, 50, 25 Cycles

Class 11-200NS1
With Reset Button in Cover

Class 11-200NS11
With Built-In Start-Stop Pushbutton



Class 11-200NS12
With Built-In Selector Switch

For across-the-line starting of squirrel cage induction motors, or for the primary control for wound rotor motors. Provide a versatile and convenient magnetic control for either local or remote operation.

Prices include heaters but do not include pushbutton. Heaters, however must be ordered separately on the basis of full load current; information furnished on request.

With Reset Button

NEMA Size No.	Max. HP.	Volts	NEMA 1 General Purpose		NEMA 3, 4, 5 Weather-Proof Water-Tight Dust-Tight		NEM 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Group E, F, G		NEMA 12 Industrial Use		Open Starter	
			No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1	110	†1588 859	$34.00	*	$69.00		......	*	$69.00	*	$46.00	†1587 694	$32.00
0	1½	220	1588 860	34.00	*	69.00	Use	......	*	69.00	*	46.00	1587 695	32.00
0	2	440	1588 861	34.00	*	69.00	Size	......	*	69.00	*	46.00	1587 696	32.00
0	2	550	1588 862	34.00	*	69.00	1	......	*	69.00	*	46.00	1587 697	32.00
0	2	600	1588 863	34.00	*	69.00		......	*	69.00	*	46.00	1587 698	32.00
1	1½	110	†1588 793	39.00	*	75.00	*	$141.00	*	75.00	*	51.00	†1587 727	37.00
1	3	220	1588 794	39.00	*	75.00	*	141.00	*	75.00	*	51.00	1587 728	37.00
1	5	440	1588 795	39.00	*	75.00	*	141.00	*	75.00	*	51.00	1587 729	37.00
1	5	550	1588 796	39.00	*	75.00	*	141.00	*	75.00	*	51.00	1587 730	37.00
1	5	600	1588 797	39.00	*	75.00	*	141.00	*	75.00	*	51.00	1587 731	37.00
1½	3	115	†1588 912	50.00	*	86.00	*	152.00	*	86.00	*	65.00	†1588 651	48.00
1½	5	230	†1588 912	50.00	*	86.00	*	152.00	*	86.00	*	65.00	†1588 651	48.00
2	3	110	1588 724	84.00	*	156.00	*	262.00	*	190.00	*	101.00	1587 613	74.00
2	7½	220	1588 725	84.00	*	156.00	*	262.00	*	190.00	*	101.00	1587 614	74.00
2	10	440	1588 726	84.00	*	156.00	*	262.00	*	190.00	*	101.00	1587 615	74.00
2	10	550	1588 727	84.00	*	156.00	*	262.00	*	190.00	*	101.00	1587 616	74.00
2	10	600	1588 728	84.00	*	156.00	*	262.00	*	190.00	*	101.00	1587 617	74.00

With Built-In Start and Stop—Reset Pushbutton

NEMA Size No.	Max. HP.	Volts	NEMA 1 General Purpose		NEMA 3, 4, 5 Weather-Proof Water-Tight Dust-Tight		NEM 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Group E, F, G		NEMA 12 Industrial Use		Open Starter	
			No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1	110	†1588 870	$42.00	*	$91.00		......	.	.....	.	......	....	.....
0	1½	220	1588 871	42.00	*	91.00	Use	......	.	.....	.	......	....	.....
0	2	440	1588 872	42.00	*	91.00	Size	......	.	.....	.	......	....	.....
0	2	550	1588 873	42.00	*	91.00	1	......	.	.....	.	......	....	.....
0	2	600	1588 874	42.00	*	91.00		......	.	.....	.	......	....	.....
1	1½	110	†1588 804	47.00	*	97.00	*	$174.00	*	$97.00	.	......	....	.....
1	3	220	1588 805	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
1	5	440	1588 806	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
1	5	550	1588 807	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
1	5	600	1588 808	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
2	3	110	1588 735	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	7½	220	1588 736	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	10	440	1588 737	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	10	550	1588 738	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	10	600	1588 739	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....

With Hand-Off-Auto Selector Switch and Reset Pushbutton

NEMA Size No.	Max. HP.	Volts	NEMA 1 General Purpose		NEMA 3, 4, 5 Weather-Proof Water-Tight Dust-Tight		NEM 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Group E, F, G		NEMA 12 Industrial Use		Open Starter	
			No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1	110	†1588 881	$42.00	*	$91.00		......	.	.....	.	......	....	.....
0	1½	220	1588 882	42.00	*	91.00	Use	......	.	.....	.	......	....	.....
0	2	440	1588 883	42.00	*	91.00	Size	......	.	.....	.	......	....	.....
0	2	550	1588 884	42.00	*	91.00	1	......	.	.....	.	......	....	.....
0	2	600	1588 885	42.00	*	91.00		......	.	.....	.	......	....	.....
1	1½	110	†1588 815	47.00	*	97.00	*	$174.00	*	$97.00	.	......	....	.....
1	3	220	1588 816	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
1	5	440	1588 817	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
1	5	550	1588 818	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
1	5	600	1588 819	47.00	*	97.00	*	174.00	*	97.00	.	......	....	.....
2	3	110	1588 746	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	7½	220	1588 747	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	10	440	1588 748	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	10	550	1588 749	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....
2	10	600	1588 750	92.00	*	178.00	*	295.00	*	212.00	.	......	....	.....

***When ordering,** specify: Style number where shown. Where no style number is given, specify class number, horsepower, voltage NEMA size or number of poles, enclosure and cycles. Enter separate item for heaters. 25 and 50 cycle control by noting as: similar to 60 cycle style and specify cycles. These controls are priced the same as 60 cycles of the same rating. Vertical mounting will be supplied unless horizontal mounting is specified, where available. Separate pushbutton station.

†Has dual voltage coil 115/230 volts; connected for 230 volts.

Separate price for heaters, $1.50 each.

Westinghouse A.C. Magnetic Non-Reversing Life-Linestarters

Class 11-200

110 to 600 Volts—60, 50, 25 Cycles, Polyphase

With Reset Button

3 Phase, 3 Pole

NEMA—Polyphase—			NEMA 1 General Purpose		NEMA 4 Water-Tight		NEMA 7 Explosion-Proof Class I, Group D		NEMA 9 Explosion-Proof Class II, Group E, F, G		NEMA 12 Industrial Use		Open Starter Panel Mounting	
Size No.	Max. Hp.	Volts	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1½	110	†1605 751	$39.00	1588 204	$74.00		......	1588 215	$74.00	*	$51.00	†1606 759	$37.00
0	2	220	1578 624	39.00	1588 205	74.00	Use	......	1588 216	74.00	*	51.00	1578 061	37.00
0	3	440	1578 625	39.00	1588 206	74.00	Size 1	......	1588 217	74.00	*	51.00	1578 062	37.00
0	3	550	1578 626	39.00	1588 207	74.00		......	1588 218	74.00	*	51.00	1578 063	37.00
0	3	600	1578 627	39.00	1588 208	74.00		......	1588 219	74.00	*	51.00	1578 064	37.00
1	3	110	†1605 752	44.00	1588 105	80.00	1588 127	$146.00	1588 116	80.00	*	56.00	†1606 761	42.00
1	5	220	1577 915	44.00	1588 106	80.00	1588 128	146.00	1588 117	80.00	*	56.00	1577 241	42.00
1	7½	440	1577 916	44.00	1588 107	80.00	1588 129	146.00	1588 118	80.00	*	56.00	1577 242	42.00
1	7½	550	1577 917	44.00	1588 108	80.00	1588 130	146.00	1588 119	80.00	*	56.00	1577 243	42.00
1	7½	600	1577 918	44.00	1588 109	80.00	1588 131	146.00	1588 120	80.00	*	56.00	1577 244	42.00
2	7½	110	†1605 754	84.00	1577 599	156.00	1577 621	262.00	1577 610	190.00	*	106.00	†1606 763	74.00
2	15	220	1577 353	84.00	1577 600	156.00	1577 622	262.00	1577 611	190.00	*	106.00	1577 306	74.00
2	25	440	1577 354	84.00	1577 601	156.00	1577 623	262.00	1577 612	190.00	*	106.00	1577 307	74.00
2	25	550	1577 355	84.00	1577 602	156.00	1577 624	262.00	1577 613	190.00	*	106.00	1577 308	74.00
2	25	600	1577 356	84.00	1577 603	156.00	1577 625	262.00	1577 614	190.00	*	106.00	1577 309	74.00
3	15	110	1746 168	138.00	1599 576	240.00	1619 530	372.00	1619 614	284.00	*	164.00	†1764 154	118.00
3	30	220	1746 169	138.00	1599 577	240.00	1619 531	372.00	1619 615	284.00	*	164.00	1746 155	118.00
3	50	440	1746 170	138.00	1599 578	240.00	1619 532	372.00	1619 616	284.00	*	164.00	1746 156	118.00
3	50	550	1746 171	138.00	1599 579	240.00	1619 533	372.00	1619 617	284.00	*	164.00	1746 157	118.00
3	50	600	1746 172	138.00	1599 580	240.00	1619 534	372.00	1619 618	284.00	*	164.00	1746 158	118.00
4	25	110	1596 784	308.00	1599 590	482.00	1619 558	608.00	1619 628	556.00	*	360.00	†1596 826	266.00
4	50	220	1596 785	308.00	1599 591	482.00	1619 559	608.00	1619 629	556.00	*	360.00	1596 827	266.00
4	100	440	1596 786	308.00	1599 597	482.00	1619 560	608.00	1619 630	536.00	*	360.00	1596 828	266.00
4	100	550	1596 787	308.00	1599 593	482.00	1619 561	608.00	1619 631	556.00	*	360.00	1596 829	266.00
4	100	600	1596 788	308.00	1599 594	482.00	1619 562	608.00	1619 632	556.00	*	360.00	1596 830	266.00
5	100	208	....	622.00	*	822.00	....	1189.00	....	......	*	747.00	....	552.00
5	100	220	1750 752	622.00	*	822.00	....	1189.00	....	......	*	747.00	1750 702	552.00
5	200	440	1750 754	622.00	*	822.00	....	1189.00	....	......	*	747.00	1750 704	552.00
5	200	550	1750 755	622.00	*	822.00	....	1189.00	....	......	*	747.00	1750 705	552.00
5	200	600	1750 756	622.00	*	822.00	....	1189.00	....	......	*	747.00	1750 706	552.00

2 Phase, 4 Pole

Size No.	Max. Hp.	Volts	NEMA 1 No.	NEMA 1 Each	NEMA 4 No.	NEMA 4 Each	NEMA 7 No.	NEMA 7 Each	NEMA 9 No.	NEMA 9 Each	NEMA 12 No.	NEMA 12 Each	Open No.	Open Each
0	1½	110	1588 336	$50.00	*	$89.00		......	*	$89.00	*	$62.00	1578 071	$47.00
0	2	220	1588 337	50.00	*	89.00	Use	......	*	89.00	*	62.00	1578 072	47.00
0	3	440	1588 338	50.00	*	89.00	Size 1	......	*	89.00	*	62.00	1578 073	47.00
0	3	550	1588 339	50.00	*	89.00		......	*	89.00	*	62.00	1578 074	47.00
0	3	600	1588 340	50.00	*	89.00		......	*	89.00	*	62.00	1578 075	47.00
1	3	110	1588 270	56.00	*	94.00	*	$158.00	*	94.00	*	94.00	1577 207	53.00
1	5	220	1588 271	56.00	*	94.00	*	158.00	*	94.00	*	94.00	1577 208	53.00
1	7½	440	1588 272	56.00	*	94.00	*	158.00	*	94.00	*	94.00	1577 209	53.00
1	7½	550	1588 273	56.00	*	94.00	*	158.00	*	94.00	*	94.00	1577 210	53.00
1	7½	600	1588 274	56.00	*	94.00	*	158.00	*	94.00	*	94.00	1577 211	53.00
2	7½	110	1578 423	103.00	*	207.00	*	309.00	*	241.00	*	144.00	1577 196	93.00
2	15	220	1578 424	103.00	*	207.00	*	309.00	*	241.00	*	144.00	1577 197	93.00
2	25	440	1578 425	103.00	*	207.00	*	309.00	*	241.00	*	144.00	1577 198	93.00
2	25	550	1578 426	103.00	*	207.00	*	309.00	*	241.00	*	144.00	1577 199	93.00
2	25	600	1578 427	103.00	*	207.00	*	309.00	*	241.00	*	144.00	1577 200	93.00
3	15	110	1598 074	168.00	....	298.00	....	......	....	......	....	......	†1598 102	150.00
3	30	220	1598 075	168.00	....	298.00	....	......	....	......	....	......	1598 103	150.00
3	50	440	1598 076	168.00	....	298.00	....	......	....	......	....	......	1598 104	150.00
3	50	550	1598 077	168.00	....	298.00	....	......	....	......	....	......	1598 105	150.00
3	50	600	1598 078	168.00	....	298.00	....	......	....	......	....	......	1598 106	150.00
4	25	110	1598 088	404.00	....	650.00	....	......	....	......	....	......	†1599 450	364.00
4	50	220	1598 089	404.00	....	650.00	....	......	....	......	....	......	1599 451	364.00
4	100	440	1598 090	404.00	....	650.00	....	......	....	......	....	......	1599 452	364.00
4	100	550	1598 091	404.00	....	650.00	....	......	....	......	....	......	1599 453	364.00
4	100	600	1598 092	404.00	....	650.00	....	......	....	......	....	......	1599 454	364.00

***When ordering,** specify: Style number where shown. Where no style number is given, specify class number, horsepower, voltage NEMA size or number of poles, enclosure and cycles. Enter separate item for heaters. 25 and 50 cycle control by noting as: similar to 60 cycle style and specify cycles. These controls are priced the same as 60 cycles of the same rating. Vertical mounting will be supplied unless horizontal mounting is specified, where available. Separate pushbutton station.

†Has dual voltage coil 115/230 volts; connected for 230 volts.

Separate price for heaters, $1.50 each.

Westinghouse A.C. Magnetic Non-Reversing Life-Linestarters

Class 11-200

110 to 600 Volts—60, 50, 25 Cycles, Polyphase

With Built-In Start and Stop Reset Pushbutton

NEMA Size No.	Max. Hp.	Poly-phase Volts	3 Phase, 3 Pole								2 Phase, 4 Pole							
			NEMA 1 General Purpose		NEMA 4 Water-Tight		NEMA 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Group E, F, G		NEMA 1 General Purpose		NEMA 4 Water-Tight		NEMA 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Group E, F, G	
			No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1½	110	1578 645	$47.00	1588 226	$96.00		......	1588 237	$96.00	1588 347	$58.00	*	$111.00		......	*	$111.00
0	2	220	1578 646	47.00	1588 227	96.00	Use	......	1588 238	96.00	1588 348	58.00	*	111.00	Use	......	*	111.00
0	3	440	1578 647	47.00	1588 228	96.00	Size	......	1588 239	96.00	1588 349	58.00	*	111.00	Size	......	*	111.00
0	3	550	1578 648	47.00	1588 229	96.00	1	......	1588 240	96.00	1588 350	58.00	*	111.00	1	......	*	111.00
0	3	600	1578 649	47.00	1588 230	96.00		......	1588 241	96.00	1588 351	58.00	*	111.00		......	*	111.00
1	3	110	1578 526	52.00	1588 138	102.00	1588 160	$179.00	1588 149	102.00	1588 281	64.00	*	116.00	*	$191.00	*	116.00
1	5	220	1578 527	52.00	1588 139	102.00	1588 161	179.00	1588 150	102.00	1588 282	64.00	*	116.00	*	191.00	*	116.00
1	7½	440	1578 528	52.00	1588 140	102.00	1588 162	179.00	1588 151	102.00	1588 283	64.00	*	116.00	*	191.00	*	116.00
1	7½	550	1578 529	52.00	1588 141	102.00	1588 163	179.00	1588 152	102.00	1588 284	64.00	*	116.00	*	191.00	*	116.00
1	7½	600	1578 530	52.00	1588 142	102.00	1588 164	179.00	1588 153	102.00	1588 285	64.00	*	116.00	*	191.00	*	116.00
2	7½	110	1577 946	92.00	1587 391	178.00	1587 347	295.00	1587 369	212.00	1578 445	111.00	*	229.00	*	342.00	*	263.00
2	15	220	1577 947	92.00	1587 392	178.00	1587 348	295.00	1587 370	212.00	1578 446	111.00	*	229.00	*	342.00	*	263.00
2	25	440	1577 948	92.00	1587 393	178.00	1587 349	295.00	1587 371	212.00	1578 447	111.00	*	229.00	*	342.00	*	263.00
2	25	550	1577 949	92.00	1587 394	178.00	1587 350	295.00	1587 372	212.00	1578 448	111.00	*	229.00	*	342.00	*	263.00
2	25	600	1577 950	92.00	1587 395	178.00	1587 351	295.00	1587 373	212.00	1578 449	111.00	*	229.00	*	342.00	*	263.00
3	15	110	1746 182	146.00	*	262.00	1619 544	405.00	*	306.00	1599 400	176.00	......	......	......	......	......	......
3	30	220	1746 183	146.00	*	262.00	1619 545	405.00	*	306.00	1599 401	176.00	......	......	......	......	......	......
3	50	440	1746 184	146.00	*	262.00	1619 546	405.00	*	306.00	1599 402	176.00	......	......	......	......	......	......
3	50	550	1746 185	146.00	*	262.00	1619 547	405.00	*	306.00	1599 403	176.00	......	......	......	......	......	......
3	50	600	1746 186	146.00	*	262.00	1619 548	405.00	*	306.00	1599 404	176.00	......	......	......	......	......	......
4	25	110	1596 910	316.00	*	504.00	1619 572	641.00	*	578.00	1599 414	412.00	......	......	......	......	......	......
4	50	220	1596 911	316.00	*	504.00	1619 573	641.00	*	578.00	1599 415	412.00	......	......	......	......	......	......
4	100	440	1596 912	316.00	*	504.00	1619 574	641.00	*	578.00	1599 416	412.00	......	......	......	......	......	......
4	100	550	1596 913	316.00	*	504.00	1619 575	641.00	*	578.00	1599 417	412.00	......	......	......	......	......	......
4	100	600	1596 914	316.00	*	504.00	1619 576	641.00	*	578.00	1599 418	412.00	......	......	......	......	......	......
5	100	208	*	655.00	*	872.00	......	......	......	......	......	......	......	......	......	......	......	......
5	100	220	*	655.00	*	827.00	......	......	......	......	......	......	......	......	......	......	......	......
5	200	440	*	655.00	*	872.00	......	......	......	......	......	......	......	......	......	......	......	......
5	200	550	*	655.00	*	872.00	......	......	......	......	......	......	......	......	......	......	......	......
5	200	600	*	655.00	*	872.00	......	......	......	......	......	......	......	......	......	......	......	......

With Hand-Off-Auto Selector Switch and Reset Pushbutton

NEMA Size No.	Max. Hp.	Poly-phase Volts	3 Phase, 3 Pole NEMA 1 No.	Each	NEMA 4 No.	Each	NEMA 7 No.	Each	NEMA 9 No.	Each	2 Phase, 4 Pole NEMA 1 No.	Each	NEMA 4 No.	Each	NEMA 7 No.	Each	NEMA 9 No.	Each
0	1½	110	1578 667	$47.00	1588 248	$96.00		......	1588 259	$96.00	1588 358	$58.00	*	$111.00		......	*	$111.00
0	2	220	1578 668	47.00	1588 249	96.00	Use	......	1588 260	96.00	1588 359	58.00	*	111.00	Use	......	*	111.00
0	3	440	1578 669	47.00	1588 250	96.00	Size	......	1588 261	96.00	1588 360	58.00	*	111.00	Size	......	*	111.00
0	3	550	1578 670	47.00	1588 251	96.00	1	......	1588 262	96.00	1588 361	58.00	*	111.00	1	......	*	111.00
0	3	600	1578 671	47.00	1588 252	96.00		......	1588 263	96.00	1588 362	58.00	*	111.00		......	*	111.00
1	3	110	1578 548	52.00	1588 171	102.00	1588 193	$179.00	1588 182	102.00	1588 292	64.00	*	116.00	*	$191.00	*	116.00
1	5	220	1578 549	52.00	1588 172	102.00	1588 194	179.00	1588 183	102.00	1588 293	64.00	*	116.00	*	191.00	*	116.00
1	7½	440	1578 550	52.00	1588 173	102.00	1588 195	179.00	1588 184	102.00	1588 294	64.00	*	116.00	*	191.00	*	116.00
1	7½	550	1578 551	52.00	1588 174	102.00	1588 196	179.00	1588 185	102.00	1588 295	64.00	*	116.00	*	191.00	*	116.00
1	7½	600	1578 552	52.00	1588 175	102.00	1588 197	179.00	1588 186	102.00	1588 296	64.00	*	116.00	*	191.00	*	116.00
2	7½	110	1577 957	92.00	1587 402	178.00	1587 358	295.00	1587 380	212.00	1578 467	111.00	*	229.00	*	342.00	*	263.00
2	15	220	1577 958	92.00	1587 403	178.00	1587 359	295.00	1587 381	212.00	1578 468	111.00	*	229.00	*	342.00	*	263.00
2	25	440	1577 959	92.00	1587 404	178.00	1587 360	295.00	1587 382	212.00	1578 469	111.00	*	229.00	*	342.00	*	263.00
2	25	550	1577 960	92.00	1587 405	178.00	1587 361	295.00	1587 383	212.00	1578 470	111.00	*	229.00	*	342.00	*	263.00
2	25	600	1577 961	92.00	1587 406	178.00	1587 362	295.00	1587 384	212.00	1578 471	111.00	*	229.00	*	342.00	*	263.00
3	15	110	1746 196	146.00	*	262.00	*	405.00	*	306.00	......	......	......	......	......	......	......	......
3	30	220	1746 197	146.00	*	262.00	*	405.00	*	306.00	......	......	......	......	......	......	......	......
3	50	440	1746 198	146.00	*	262.00	*	405.00	*	306.00	......	......	......	......	......	......	......	......
3	50	550	1746 199	146.00	*	262.00	*	405.00	*	306.00	......	......	......	......	......	......	......	......
3	50	600	1746 200	146.00	*	262.00	*	405.00	*	306.00	......	......	......	......	......	......	......	......
4	25	110	*	316.00	*	504.00	*	641.00	*	578.00	......	......	......	......	......	......	......	......
4	50	208-220	*	316.00	*	504.00	*	641.00	*	578.00	......	......	......	......	......	......	......	......
4	100	440-600	*	316.00	*	504.00	*	641.00	*	578.00	......	......	......	......	......	......	......	......
5	100	208-220	*	655.00	*	872.00	......	......	......	......	......	......	......	......	......	......	......	......
5	200	440-600	*	655.00	*	872.00	......	......	......	......	......	......	......	......	......	......	......	......

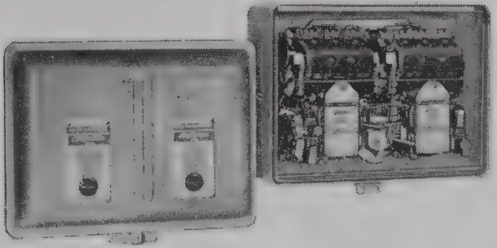
***When ordering,** specify: Style number where shown. Where no style number is given, specify class number, horsepower, voltage, NEMA size or number of poles, enclosure and cycles. Enter separate item for heaters. 25 and 50 cycle control by noting as: similar to 60 cycle style and specify cycles. These controls are priced the same as 60 cycles of the same rating. Vertical mounting will be supplied unless horizontal mounting is specified, where available. Separate pushbutton station.

Separate price for heaters, $1.50 each.

Westinghouse A.C. Magnetic Reversing Life-Linestarters

Class 11-210

110 to 600 Volts—60, 50, 25 Cycles



Designed for starting, stopping, and reversing the direction of a.c. squirrel cage motors, and for the primary control of reversing wound rotor motors.

Prices include heaters but do not include push-button. Heaters, however must be ordered separately on the basis of motor full load current; information furnished on request.

With Reset Button

3 Phase, 3 Pole

NEMA Size No.	Max. Hp. For Non-Plugging and Non-Inching Service	Max. Hp. For Plugging and Inching Service	Volts	NEMA 1 General Purpose No.	NEMA 1 General Purpose Each	NEMA 4 Water-Tight No.	NEMA 4 Water-Tight Each	NEMA 7 Explosion-Proof Class I Group D No.	NEMA 7 Explosion-Proof Class I Group D Each	NEMA 9 Explosion-Proof Class II Groups E, F, G No.	NEMA 9 Explosion-Proof Class II Groups E, F, G Each	NEMA 12 Industrial Use No.	NEMA 12 Industrial Use Each	Open Type Panel Mounting No.	Open Type Panel Mounting Each
00	¾	..	110	1190 524	$72.00	....	$118.00		.....	....	$118.00		.....	1190 513	$68.00
00	1	..	220	1190 525	72.00	....	118.00	Use	.....	....	118.00	Use	.....	1190 514	68.00
00	1	..	440	1190 526	72.00	....	118.00	Size	.....	....	118.00	Size	.....	1190 515	68.00
00	1	..	550	1190 527	72.00	....	118.00	1	.....	....	118.00	0	.....	1190 516	68.00
00	1	..	600	1190 528	72.00	....	118.00		.....	....	118.00		.....	1190 517	68.00
0	1½	¾	110	†1605 756	84.00	1605 077	130.00	....	$242.00	1605 066	130.00	*	$102.00	†1606 760	80.00
0	2	1	220	1588 687	84.00	1605 078	130.00	....	242.00	1605 067	130.00	*	102.00	1587 640	80.00
0	3	1	440	1588 688	84.00	1605 079	130.00	....	242.00	1605 068	130.00	*	102.00	1587 641	80.00
0	3	1	550	1588 689	84.00	1605 080	130.00	....	242.00	1605 069	130.00	*	102.00	1587 642	80.00
0	3	1	600	1588 690	84.00	1605 081	130.00	....	242.00	1605 070	130.00	*	102.00	1587 643	80.00
1	3	2	110	†1605 757	96.00	1605 055	160.00	1605 033	256.00	1605 044	160.00	*	114.00	†1606 762	90.00
1	5	3	220	1588 654	96.00	1605 056	160.00	1605 034	256.00	1605 045	160.00	*	114.00	1578 110	90.00
1	7½	5	440	1588 655	96.00	1605 057	160.00	1605 035	256.00	1605 046	160.00	*	114.00	1578 111	90.00
1	7½	5	550	1588 656	96.00	1605 058	160.00	1605 036	256.00	1605 047	160.00	*	114.00	1578 112	90.00
1	7½	5	600	1588 657	96.00	1605 059	160.00	1605 037	256.00	1605 048	160.00	*	114.00	1578 113	90.00
2	7½	5	110	†1605 755	184.00	1605 022	288.00	1605 000	452.00	1605 011	326.00	*	214.00	†1606 764	168.00
2	15	10	220	1577 118	184.00	1605 023	288.00	1605 001	452.00	1605 012	326.00	*	214.00	1577 107	168.00
2	25	15	440	1577 119	184.00	1605 024	288.00	1605 002	452.00	1605 013	326.00	*	214.00	1577 108	168.00
2	25	15	550	1577 120	184.00	1605 025	288.00	1605 003	452.00	1605 014	326.00	*	214.00	1577 109	168.00
2	25	15	500	1577 121	184.00	1605 026	288.00	1605 004	452.00	1605 015	326.00	*	214.00	1577 110	168.00
3	15	10	110	1746 238	305.00	1599 604	459.00	*	785.00	*	503.00	....	317.00	†1596 840	277.00
3	30	20	220	1746 239	305.00	1599 605	459.00	*	785.00	*	503.00	....	317.00	1596 841	277.00
3	50	30	440	1746 240	305.00	1599 606	459.00	*	785.00	*	503.00	....	317.00	1596 842	277.00
3	50	30	550	1746 240	305.00	1599 607	459.00	*	785.00	*	503.00	....	317.00	1596 843	277.00
3	50	30	600	1746 242	305.00	1599 608	459.00	*	785.00	*	503.00	....	317.00	1596 844	277.00
4	25	15	110	1599 548	724.00	1599 618	996.00	....	1670.00	*	1070.00	....	826.00	†1599 492	672.00
4	50	30	220	1599 549	724.00	1599 619	996.00	....	1670.00	*	1070.00	....	826.00	1599 493	672.00
4	100	60	440	1599 550	724.00	1599 620	996.00	....	1670.00	*	1070.00	....	826.00	1599 494	672.00
4	100	60	550	1599 551	724.00	1599 621	996.00	....	1670.00	*	1070.00	....	826.00	1599 495	672.00
4	100	60	600	1599 552	724.00	1599 622	996.00	....	1670.00	*	1070.00	....	826.00	1599 496	672.00
5	100	75	208–220	*	1410.00	....	1650.00	....	.....	....	.....	....	1730.00	....	1136.00
5	200	150	440–600	*	1410.00	....	1650.00	....	.....	....	.....	....	1730.00	....	1136.00
								2 Phase, 4 Pole							
0	1½	¾	110	1588 294	$104.00	*	$150.00	*	$264.00	*	$150.00	....	.....	1588 575	$100.00
0	2	1	220	1588 925	104.00	*	150.00	*	264.00	*	150.00	....	.....	1588 576	100.00
0	3	1	440	1588 926	104.00	*	150.00	*	264.00	*	150.00	....	.....	1588 577	100.00
0	3	1	550	1588 927	104.00	*	150.00	*	264.00	*	150.00	....	.....	1588 578	100.00
0	3	1	600	1588 928	104.00	*	150.00	*	264.00	*	150.00	....	.....	1588 579	100.00
1	5	2	110	1588 957	117.00	*	181.00	*	277.00	*	181.00	....	.....	1588 542	113.00
1	5	3	220	1588 958	117.00	*	181.00	*	277.00	*	181.00	....	.....	1588 543	113.00
1	7½	5	440	1588 959	117.00	*	181.00	*	277.00	*	181.00	....	.....	1588 544	113.00
1	7½	5	550	1588 960	117.00	*	181.00	*	277.00	*	181.00	....	.....	1588 545	113.00
1	7½	5	600	1588 961	117.00	*	181.00	*	277.00	*	181.00	....	.....	1583 546	113.00
2	7½	5	110	....	226.00	....	.....	....	.....	....	.....	....	.....	1578 861	210.00
2	15	10	220	....	226.00	....	.....	....	.....	....	.....	....	.....	1578 862	210.00
2	25	15	440	....	226.00	....	.....	....	.....	....	.....	....	.....	1578 863	210.00
2	25	15	550	....	226.00	....	.....	....	.....	....	.....	....	.....	1578 864	210.00
2	25	15	600	....	226.00	....	.....	....	.....	....	.....	....	.....	1578 865	210.00

***When ordering,** specify: Style number where shown. Where no style number is given, specify class number, horsepower, voltage, NEMA size, circuit breaker rating, frequency and number of phases of motor. 25 and 50 cycle control by noting as: similar to 60 cycle style and specify cycles.

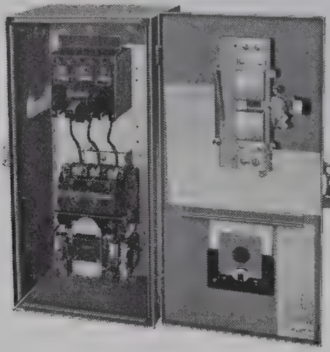
These controls are priced the same as 60 cycles of the same rating. Enter separate item for two overload heaters. Separate pushbutton station.

†Number covers starter with isolated control circuit, Separate price for heaters, $1.50 each,

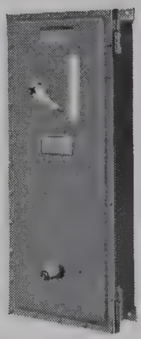
Westinghouse A.C. Magnetic Non-Reversing Combination Life-Linestarters

Class 11-206—With Circuit Breakers

110 to 600 Volts, 60, 50 or 25 Cycles, 1 and 3 Phase



N.E.M.A. Type 1



N.E.M.A. IX for Class II Atmospheres

With Reset Button

NEMA Size No.	Max. Hp. 3-Phase	Volts	*Circuit Breaker Amp. and Frame Size	NEMA 1 General Purpose		†NEMA 4 Water-Tight		NEMA 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Groups E, F G		‡NEMA 12 Industrial Use	
				No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
0	1	110	20E	31D5341G1	$101.00	USE SIZE 1	......	USE SIZE 1	......	....	......	USE SIZE 1	......
0	1½	110	30E	31D5341G2	101.00		......		......	....	......		......
0	1½	220	15E	31D5341G3	101.00		......		......	....	......		......
0	2	220	20E	31D5341G4	101.00		......		......	....	......		......
0	3	440	15F	31D5357G1	130.00		......		......	....	......		......
0	3	550	15F	31D5357G2	130.00		......		......	....	......		......
0	3	600	15F	31D5357G3	130.00		......		......	....	......		......
1	3	110	40E	31D5345G2	106.00	1587 821	$202.00	1587 749	$260.00	1587 785	$210.00	31D5348G2	$130.00
1	3	220	30E	31D5345G3	106.00	....	202.00	....	260.00	....	210.00	31D5348G4	130.00
1	5	220	40E	31D5345G4	106.00	1587 823	202.00	1587 751	260.00	1587 787	210.00	31D5348G3	130.00
1	3	440	15F	31D5361G1	135.00	1587 824	231.00	1587 752	289.00	1587 788	239.00	31D5364G1	159.00
1	7½	440	20F	31D5361G2	135.00	1587 825	231.00	1587 753	289.00	1587 789	239.00	31D5364G2	159.00
1	5	550	15F	31D5361G3	135.00	1587 826	231.00	1587 754	289.00	1587 790	239.00	31D5364G3	159.00
1	7½	550	20F	31D5361G4	135.00	1587 827	231.00	1587 755	289.00	1587 791	239.00	31D5364G4	159.00
1	7½	600	15F	31D5361G5	135.00	1587 828	231.00	1587 756	289.00	1587 792	239.00	31D5364G5	159.00
2	5	110	50E	31D5351G1	161.00	....	309.00	....	356.00	....	345.00	31D5354G1	195.00
2	7½	220	50E	31D5351G3	161.00	....	309.00	....	356.00	....	345.00	31D5354G3	195.00
2	15	220	100E	31D5351G5	161.00	....	309.00	....	356.00	....	345.00	31D5354G5	195.00
2	15	440	40F	31D5367G1	190.00	1577 580	338.00	1577 591	385.00	1577 831	374.00	31D5370G1	224.00
2	25	440	50F	31D5367G2	190.00	1577 581	338.00	1577 592	385.00	1577 832	374.00	31D5370G2	224.00
2	15	550	40F	31D5367G3	190.00	....	338.00	....	385.00	....	374.00	31D5370G3	224.00
2	25	550	50F	31D5367G4	190.00	1577 583	338.00	1577 594	385.00	1577 834	374.00	31D5370G4	224.00
2	15	600	30F	31D5367G5	190.00	1577 584	338.00	1577 595	385.00	1577 835	374.00	31D5370G5	224.00
2	25	600	50F	31D5367G6	190.00	1577 585	338.00	1577 596	385.00	1577 836	374.00	31D5370G6	224.00
3	15	110	100F	1745 200	275.00	1745 354	533.00	1745 382	600.00	1745 396	577.00	....	319.00
3	30	220	100F	1745 201	275.00	1745 355	533.00	1745 383	600.00	1745 397	577.00	....	319.00
3	50	440	100F	1745 202	275.00	1745 356	533.00	1745 384	600.00	1745 398	577.00	....	319.00
3	50	550	100F	1745 203	275.00	1745 357	533.00	1745 385	600.00	1745 399	577.00	....	319.00
3	50	600	100F	1745 204	275.00	1745 358	533.00	1745 386	600.00	1745 400	577.00	....	319.00
4	25	110	200J	1745 564	600.00	1745 676	930.00	1619 600	1050.00	1746 028	984.00	....	722.00
4	50	220	200J	1745 565	600.00	1745 677	930.00	1619 601	1050.00	1746 029	984.00	....	722.00
4	100	440	200J	1745 566	600.00	1745 678	930.00	1619 602	1050.00	1746 030	984.00	....	722.00
4	100	550	200J	1745 567	600.00	1745 679	930.00	1619 603	1050.00	1746 031	984.00	....	722.00
4	100	600	200J	1745 568	600.00	1745 680	930.00	1619 604	1050.00	1746 032	984.00	....	722.00
5	100	220	400L	1750 852	1405.00	§	2247.00	....	2490.00	....	2411.00	....	1701.00
5	200	440	400L	1750 854	1405.00	§	2247.00	....	2490.00	....	2411.00	....	1701.00
5	200	550	400L	1750 855	1405.00	§	2247.00	....	2490.00	....	2411.00	....	1701.00
5	200	600	400L	1750 856	1405.00	§	2247.00	....	2490.00	....	2411.00	....	1701.00

Prices include heaters but do not include push-button. Heaters, however must be ordered separately on the basis of motor full load current; information furnished on request.

*Interrupting capacities of AB breakers (based on NEMA test procedures): E frame, 7,500 amperes; F frame, 15,000 amperes, 600 volts a.c.; L frame, 25,000 amperes 600 volts a.c., 40,000 amperes, 240 volts a.c.

†Also available as fabricated sheet steel enclosure at same price as cast iron enclosures listed. Order as NEMA 3, 4, 5 sheet steel.

‡Prices do not include reset button or control circuit transformers.

§**When ordering** specify: Style number where shown. Where no style number is given, specify class number, horsepower, voltage, NEMA size, circuit breaker rating, frequency and number of phases of motor. 25 and 50 cycle control by noting as: similar to 60 cycle style and specify cycles. These controls are priced the same as 60 cycles of the same rating. Enter separate item for two overload heaters. Separate pushbutton station.

Separate price for heaters, $1.50 each.

Westinghouse A.C. Magnetic Non-Reversing Combination Life-Linestarters

Class 11-206—With Circuit Breakers

110 to 600 Volts, 60, 50 or 25 Cycles, 1 and 3 Phase

With Built-In Start and Stop—Reset Pushbutton

NEMA Size No.	Max. Hp. 3-Phase	Volts	*Circuit Breaker Amp. and Frame Size	NEMA 1 General Purpose		†NEMA 3, 4, 5 Weather-Proof Water-Tight Dust-Tight		NEMA 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Groups E, F, G	
				No.	Each	No.	Each	No.	Each	No.	Each
0	1	110	20E	31D5342G1	$109.00		......		......		......
0	1½	110	30E	31D5342G2	109.00	Use	......	Use	......	Use	......
0	1½	220	15E	31D5342G3	109.00	Size	......	Size	......	Size	......
0	2	220	20E	31D5342G4	109.00	1	......	1	......	1	......
0	3	440	15F	31D5358G1	138.00		......		......		......
0	3	550	15F	31D5358G2	138.00		......		......		......
0	3	600	15F	31D5358G3	138.00		......		......		......
1	3	110	40E	31D5346G2	114.00	1587 833	$224.00	1587 761	$293.00	1587 797	$232.00
1	3	220	30E	31D5346G3	114.00	....	224.00	....	293.00	....	232.00
1	5	220	40E	31D5346G4	114.00	1587 835	224.00	1587 763	293.00	1587 799	232.00
1	3	440	15F	31D5362G1	143.00	1587 836	253.00	1587 764	322.00	1587 800	261.00
1	7½	440	20F	31D5362G2	143.00	1587 837	253.00	1587 765	322.00	1587 801	261.00
1	5	550	15F	31D5362G3	143.00	1587 838	253.00	1587 766	322.00	1587 802	261.00
1	7½	550	20F	31D5362G4	143.00	1587 839	253.00	1587 767	322.00	1587 803	261.00
1	7½	600	15F	31D5362G5	143.00	1587 840	253.00	1587 768	322.00	1587 804	261.00
2	5	110	50E	31D5352G1	169.00	....	331.00	....	389.00	....	367.00
2	7½	220	50E	31D5352G3	169.00	....	331.00	....	389.00	....	367.00
2	15	220	100E	31D5352G5	169.00	....	331.00	....	389.00	....	367.00
2	15	440	40F	31D5368G1	198.00	1587 479	360.00	1587 435	418.00	1587 457	396.00
2	25	440	50F	31D5368G2	198.00	1587 480	360.00	1587 436	418.00	1587 458	396.00
2	15	550	40F	31D5368G3	198.00	....	360.00	....	418.00	....	396.00
2	25	550	50F	31D5368G4	198.00	1587 482	360.00	1587 438	418.00	1587 460	396.00
2	15	600	30F	31D5368G5	198.00	1587 483	360.00	1587 439	418.00	1587 461	396.00
2	25	600	50F	31D5368G6	198.00	1587 484	360.00	1587 440	418.00	1587 462	396.00
3	15	110	100F	1745 214	283.00	‡	555.00	‡	633.00	‡	599.00
3	30	208-220	100F	1745 215	283.00	‡	555.00	‡	633.00	‡	599.00
3	50	380-440	100F	1745 216	283.00	‡	555.00	‡	633.00	‡	599.00
3	50	550	100F	1745 217	283.00	‡	555.00	‡	633.00	‡	599.00
3	50	600	100F	1745 218	283.00	‡	555.00	‡	633.00	‡	599.00
4	25	110	200J	1745 578	608.00	‡	952.00	‡	1083.00	‡	1006.00
4	50	208-220	200J	1745 579	608.00	‡	952.00	‡	1083.00	‡	1006.00
4	100	380-440	200J	1745 580	608.00	‡	952.00	‡	1083.00	‡	1006.00
4	100	550	200J	1745 581	608.00	‡	952.00	‡	1083.00	‡	1006.00
4	100	600	200J	1745 582	608.00	‡	952.00	‡	1083.00	‡	1006.00
5	100	220	400L	‡	1438.00	‡	2297.00	....	....	....	....
5	200	440-600	400L	‡	1438.00	‡	2297.00	....	....	....	....

With Hand-Off-Auto Selector Switch and Reset Pushbutton

NEMA Size No.	Max. Hp. 3-Phase	Volts	*Circuit Breaker Amp. and Frame Size	NEMA 1 General Purpose		NEMA 3, 4, 5 Weather-Proof Water-Tight Dust-Tight		NEMA 7 Explosion-Proof Class I Group D		NEMA 9 Explosion-Proof Class II Groups E, F, G	
				No.	Each	No.	Each	No.	Each	No.	Each
0	1	110	20E	31D5343G1	$109.00	Use	......	Use	......	Use	......
0	1½	110	30E	31D5343G2	109.00	Size	......	Size	......	Size	......
0	1½	220	15E	31D5343G3	109.00	1	......	1	......	1	......
0	2	220	20E	31D5343G4	109.00		......		......		......
0	3	440	15F	31D5359G1	138.00		......		......		......
0	3	550	15F	31D5359G2	138.00		......		......		......
0	3	600	15F	31D5359G3	138.00		......		......		......
1	3	110	40E	31D5347G2	114.00	1587 845	$224.00	1587 773	$293.00	1587 809	$232.00
1	3	220	30E	31D6347G3	114.00	....	224.00	....	293.00	....	232.00
1	5	220	40E	31D5347G4	114.00	1587 847	224.00	1587 775	293.00	1587 811	232.00
1	3	440	15F	31D5363G1	143.00	1587 848	253.00	1587 776	311.00	1587 812	261.00
1	7½	440	20F	31D5363G2	143.00	1587 849	253.00	1587 777	311.00	1587 813	261.00
1	5	550	15F	31D5263G3	143.00	1587 850	253.00	1587 778	311.00	1587 814	261.00
1	7½	550	20F	31D5363G4	143.00	1587 851	253.00	1587 779	311.00	1587 815	261.00
1	7½	600	15F	31D5363G5	143.00	1587 852	253.00	1587 780	311.00	1587 816	261.00
2	5	110	50E	31D5353G1	169.00	....	331.00	....	389.00	....	367.00
2	7½	220	50E	31D5353G3	169.00	....	331.00	....	389.00	....	367.00
2	15	220	100E	31D5353G5	169.00	....	331.00	....	389.00	....	367.00
2	15	440	40F	31D5369G1	198.00	1587 490	360.00	1587 446	418.00	1587 468	396.00
2	25	440	50F	31D5369G2	198.00	1587 491	360.00	1587 447	418.00	1587 469	396.00
2	15	550	40F	31D5369G3	198.00	....	360.00	....	418.00	....	396.00
2	25	550	50F	31D5369G4	198.00	1587 493	360.00	1587 449	418.00	1587 471	396.00
2	15	600	30F	31D5369G5	198.00	1587 494	360.00	1587 450	418.00	1587 472	396.00
2	25	600	50F	31D5369G6	198.00	1587 495	360.00	1587 451	418.00	1587 473	396.00

Prices include heaters but do not include pushbutton. Heaters, however must be ordered separately on the basis of motor full load current; information furnished on request.

*Interrupting capacities of AB breakers (based on NEMA test procedures): E frame, 7,500 amperes; F frame, 15,000 amperes, 600 volts a.c.; L frame, 25,000 amperes, 600 volts a.c., 40,000 amperes, 240 volts a.c.

†Also available as fabricated sheet steel enclosure at same price as cast iron enclosures listed. Order as NEMA sheet steel.

‡**When ordering,** specify: Style number where shown. Where no style number is given, specify class number, horsepower, voltage, NEMA size, circuit breaker rating, frequency and number of phases of motor. 25 and 50 cycle control by noting as: similar to 60 cycle style and specify cycles. These controls are priced the same as 60 cycles of the same rating. Enter separate item for two overload heaters. Separate pushbutton station.

Separate price for heaters, $1.53 each.

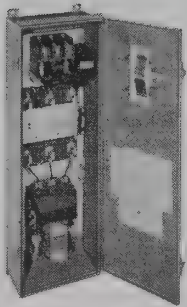
Westinghouse A.C. Motor Watchman Across-the-Line Starters

Class 10-100—Manual—Non-Reversing

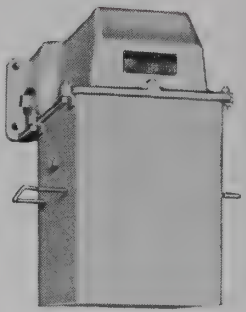
110 to 600 Volts—60, 50, or 25 Cycles

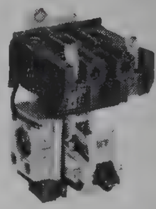
NEMA Type 1

NEMA Types 3, 4, 5


NEMA Type 12

NEMA Types 7, 9, 9A


NEMA Types 8, 11


Open Type

Enclosures for Non-Hazardous Locations

NEMA Type 1. General purpose sheet-steel enclosure designed to prevent accidental contact with control apparatus. Suitable for general-purpose indoor applications where atmospheric conditions are normal. Provides protection against dust, lint and indirect splashing, but is not dust-tight.

Cover is either lift-off or hinged type, for any conventional type of fastening. Knockouts provided in top, bottom, sides and rear.

NEMA Types 3, 4, 5. Weather-proof, water-tight, dust-tight. Cast iron or heavy gage steel enclosure with sponge neoprene gasket between cover and case, also hold-down bolts around entire cover to compress gasket. Threaded hubs for conduit. Meets the NEMA ICI-1.12 hose test. This test requires that the enclosure remain leak-proof when subjected to stream of water from hose delivering at least 65 gpm. from 1-inch nozzle for 5 minutes at a distance of no less than 10 feet.

NEMA Type 12. Industrial use. Designed for use in those industries where it is desired to exclude such materials as dust, lint, fibers and flyings; or oil or coolant seepage. The cover is hinged to swing horizontally; held in place with screws, bolts or other suitable fasteners which require tool to release. Fastener parts held in place to prevent loss when door is open. No holes through enclosure for mounting or for mounting controls with enclosure. No conduit knockouts or conduit openings. Mounting feet or other suitable mounting means are provided. Also available in non-combination devices, except cover removable. Absence of openings prevents entrance of dust and dirt. Drip shield protects against splashing oils, coolants and cutting compounds.

Enclosures for Hazardous Locations

NEMA Type 7, Air Break. For explosive vapors. Boiler plate or cast iron enclosure specially reinforced with wide machined flanges. Heavy bolts around entire cover flange hold cover securely in place. All conduit openings threaded. Suitable for NEC class I, group D hazardous locations containing gasoline, lacquers, solvent vapors and natural gas.

NEMA Types 8 and 11. Oil-immersed for explosive vapors and corrosive atmospheres. Cast iron top and heavy gage steel tank. NEMA 8, for class I, group D protection in corrosive and explosive atmospheres; NEMA 11 for corrosive atmospheres.

NEMA Types 9, 9A. For explosive dusts. Boiler plate or cast iron enclosure with specially machined flanges. Heavy bolts around entire cover flange hold cover securely in place. All conduit openings threaded. Suitable for NEC class II, groups E, F and G hazardous locations containing metal dust, carbon black, coal or coke dust and grain dust.

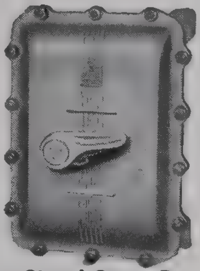
NEMA Size No.	Max. Hp. 110 Volts	Max. Hp. 208-230 Volts	Max. Hp. 440-600 Volts	NEMA 1 General Purpose No.	Each	NEMA 1 Flush Mounting No.	Each	†NEMA 3, 4, 5 Weather-Proof Water-Tight Dust-Tight No.	Each	†NEMA 7, 9 Explosion-Proof Class I Group D No.	Each	NEMA 12 Industrial Use No.	Each	Open Starter No.	Each
Single Phase, 2 Poles															
0	1	1½	2	1040 456	$20.00	1075 414	$28.00							1040 108	$18.00
1	1½	3	5	1577 545	25.00	1577 869	33.00							1577 251	23.00
0	1	1½	2					1072 772	$52.00	1072 692	$66.00				
1	1½	3	5					1578 610	64.00	1578 601	78.00				
Poly Phase, 3 Poles															
0	1½	2	3	1040 457	$25.00	1073 415	$33.00							1040 109	$23.00
0	1½	2	3	*1040 458	25.00							‡40A7123G6	$32.00		
0	1½	2	3					1072 773	$57.00	1072 693	$71.00	40A7123G5	32.00		
0	1½	2	3	1153 710	32.00										
0	1½	2	3	*1153 712	32.00										
0	1½	2	3	*1614 573	40.00										
0	1½	2	3	*1614 593	40.00										
1	3	5	7½	1577 546	30.00	1577 870	38.00							1577 253	28.00
1	3	5	7½									‡40A7123G8	37.00		
1	3	5	7½					1578 614	69.00	1578 605	83.00	40A7123G7	37.00		
1	3	5	7½	1606 676	37.00										
1	3	5	7½	1605 834	37.00										
1	3	5	7½	1577 254	37.00										
1	3	5	7½	1614 594	45.00										
1	3	5	7½	1614 595	45.00										

*Oversize enclosure. †One tapped hole (one inch diameter) at each end. ‡Line terminals located at the bottom.
Separate price for heaters, $1.50 each.

Type AB-I Westinghouse "De-Ion" Nofuze Circuit Breakers

For Protection of Light and Power Circuits

Sheet Steel
Dust-Resisting
100 Amperes—3 Pole



Class I Group D
Hazardous Locations
225 Amperes—3 Pole

Fuseless protective devices that protect insulated conductors from effects of over-current and short circuits. Permit temporary light overload, but will trip instantly when a heavy overload develops.

Used for protection of circuits in industrial plants, commercial buildings, or any place where fuses, fuse switches and similar protective devices would be used.

Enclosures

Sheet Steel—Dust-Resisting—NEMA 1A.
Cast Iron—Water and Dust-Tight—NEMA 3-4-5.
Cast Iron—Class I, Explosion-Proof—NEMA 7.
Cast Iron—Class II, Explosion-Proof—NEMA 9.
Sheet Steel—Flush and Surface Mounting—with Neutral—NEMA 1 and 1 B.
Sheet Steel—Supplementary-Surface Mounting—NEMA 1.
Oil Immersed—Class I, Explosion-Proof or Corrosion-Resisting—NEMA 8 or 11.

Listed by Underwriters' Laboratories

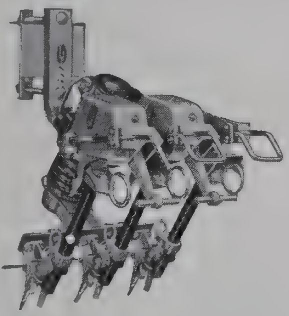
Type AB-I Circuit Breakers are listed except all E Frame 50-ampere trip, 1, 2 and 3-pole, 125-volt a.c., 250-volt a.c., 125/250-volt d.c. in NEMA types 3, 4 and 5 enclosures.

Cast enclosures for Class I, Group D hazardous locations are listed with the following modifications:

Catalog Voltage Rating	U. L. Listed Voltage Rating
250 V. A.C.—125/250 V. D.C.	125/250 V. A.C. or D.C.
600 V. A.C.—250 V. D.C.	250 V. A.C. or D.C.
600 V. A.C.	250 V. A.C. or D.C.

L-M Type RLO Circuit Reclosing Disconnecting Fuse Cutouts

7500 and 15000 Volts, 100 Amperes



Simple and dependable. Fully automatic. When first fuse link blows, flip-out mechanism instantly snaps out unburned leader from cartridge assuring clearing of arc inside cartridge even on low fault currents. Simultaneously double hinge at lower contact collapses and allows fuse cartridge to drop 180°. Dropping of cartridge releases spring actuated tripping lever which carries floating contact rod upward until it bridges contact horns of second fuse cartridge and recloses circuit. This reclosing action is momentarily retarded by bellows time-delay mechanism, allowing fault-clearing time lapse before circuit is reclosed. It is impossible to have two fuses in parallel due to a switch failing to open. No levers to pull; no mechanism to cock. No tools other than switch stick necessary to restore cutout to its full sequence of operation. Cartridges can be replaced in any sequence without even momentary service interruptions.

Split Bolt Connector Type Terminals No. 1/0 Standard Maximum Wire Size

7500 Volts—100 Amperes

No. **C-230033-10**, Fuse cutout complete with 5 petticoat fog type insulator.

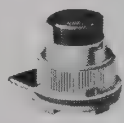
15000 Volts—100 Amperes

No. **C-230033-12**, Fuse cutout complete with 6 petticoat fog type insulator.

Westinghouse Type OT Oil-Tight Heavy Duty Pushbuttons

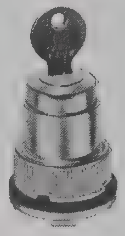
Class 15-022

For A.C. and D.C. Pilot Control Circuits



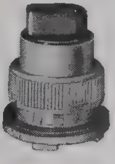
Standard Head
Pushbutton

Mushroom Head
Pushbutton

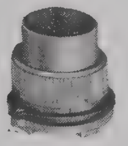


Cylinder Lock
Pushbutton

Cylinder Lock
Selector Switch

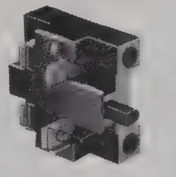


Selector Switch
Operator

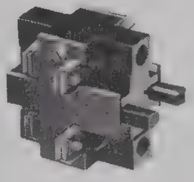


Coin Slot
Operator

Select-O-Push



Single Pole
Contact Block



Double Pole
Contact Block

Indicating
Light

Indicating lights available in six different colors. Legend plates are available for all applications.

Operators and Accessories

Standard Head Pushbutton

No.	**1470 132**	**1470 134**	**1605 192**	**1605 197**
Each	**$2.70**	**2.70**	**2.70**	**2.70**
Color	Black	Red	Green	Brown

Mushroom Head Pushbutton

No.	**1470 135**	**1470 136**	**1613 461**	**1613 466**
Each	**$5.70**	**5.70**	**5.70**	**5.70**
Color	Black	Red	Green	Brown

***Cylinder Lock Pushbutton**

No.	**1631 414**	**1631 415**
Each	**$8.70**	**8.70**
Type	Lock Out	Lock In

***Cylinder Lock Selector Switch**

No.	**1614 187**	**1614 188**
Each	**$9.70**	**9.70**
No. Positions	2	3

†Selector Switch Operator

No.	**1577 876**	**1470 139**
Each	**$3.70**	**3.70**
No. Positions	2	3

†Coil Slot Operator

No.	**1470 144**
Each	**$6.00**
No. Positions	2

Select-O-Push

No. **1479 151**, Operator Only, Standard Style...each **$5.40**

*For key removable all positions. Also available with key removable 1 position only. †Available in both 1 pole and 2 pole double throw arrangements.

Contact Blocks

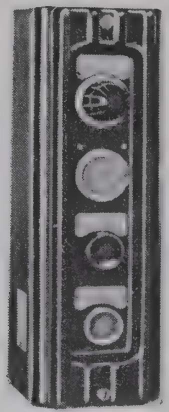
Contact Symbols

Single Pole Double Throw	Double Pole Double Throw	Double Pole Normally Open	Double Pole Normally Closed	4 Pole Double Throw Tandem Block
No. 1420 008	No. 1420 010	No. 1470 130	No. 1470 132	No. 1532 957
No. 1420 009	No. 1420 011	No. 1470 129	No. 1470 131	

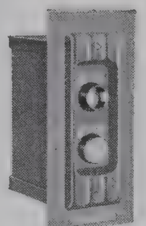
Box Mounted		Operator Cover Mounted		Contacts	
No.	Each	No.	Each	Normally Open	Normally Closed
1420 008	**$3.00**	**1420 009**	**$3.00**	1	1
1420 010	**6.00**	**1420 011**	**6.00**	2	2
1470 130	**5.00**	**1470 129**	**5.00**	2	0
1470 132	**5.00**	**1470 131**	**5.00**	0	2
....	....	**1532 957**	**15.00**	4	4

Westinghouse Type HD Heavy Duty Pushbuttons

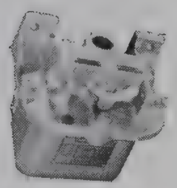
Class 15-010
For A.C. and D.C. Pilot Control Circuits



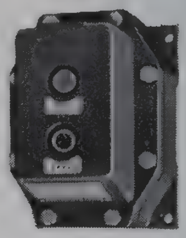
Type HDS for Surface Mounting



Type HDF for Flush Wall Mounting NEMA 1



Type HDE Oil-Immersed Explosion-Proof NEMA 7, 8 or 9



Type HDCE Air Break Station NEMA 7 or 9

1 Unit Pushbutton Stations

		*NEMA Type 1					For Hazardous Locations Class I, Group D Vapors Class II, Groups E, F, G Dusts			
Legend Plate Markings	Description	General Purpose Surface Mounting Type HDS No.	Flush Mounting Type HDF Without Outlet Box No.	Each	NEMA Types 3, 4, 5 Weather-Proof Water-Tight Dust-Tight Type HDW No.	Each	†NEMA Types 7, 8, 9 Oil Immersed Type HD Without Oil No.	Each	NEMA Types 7, 9 Air Break Type HDCE No.	Each
Start	Std. 2 Pt.	1033 319	1033 408	$11.00	47A4254G3	$23.00	46A8118G19	$27.00	1719 921	$27.00
Stop	Std. 2 Pt.	1033 321	1033 410	11.00	47A4254G4	23.00	46A8118G20	27.00	1227 932	27.00
Stop (On-Safe)	Rotary Latch, 2 Pt.	1033 323	1719 964	14.00	....	.....	....	.....	....	.....
Stop (On-Inch)	Rotary Latch, 2 Pt.	1033 324	....	14.00	....	.....	....	.....	....	.....

2 Units Pushbutton Stations

Legend Plate Markings	Description	HDS No.	HDF No.	Each	HDW No.	Each	HD No.	Each	HDCE No.	Each
Start Stop	Std. 2 Pt. Std. 2 Pt.	1033 337	1033 418	$17.00	47A4254G1	$26.00	46A8118G17	$30.00	1133 600	$30.00
Start Stop	Maintained DPDT	1764 817	1764 927	17.00	47A5254G18	26.00	46A8118G24	30.00	1764 561	30.00
Start Stop (On-Safe)	Std. 2 Pt. Rotary Latch, 2 Pt.	1033 343	1613 431	20.00	....	.....	....	.....	....	.....
Start Stop (On-Inch)	Std. 2 Pt. Rotary Latch 2 Pt.	1033 344	1154 002	20.00	....	.....	....	.....	....	.....

3 Units Pushbutton Stations

Legend Plate Markings	Description	HDS No.	HDF No.	Each	HDW No.	Each	HD No.	Each	HDCE No.	Each
Forward Reverse Stop	Std. 2 Pt. Std. 2 Pt. Std. 2 Pt.	1033 357	1033 431	$22.00	47A4255G4	$44.00	46A8118G31	$58.00	1167 169	$58.00
Fast Slow Stop	Std. 2 Pt. Std. 2 Pt. Std. 2 Pt.	1033 358	1033 432	22.00	47A4255G8	44.00	....	58.00	1719 922	58.00

4 Units Pushbutton Stations

Legend Plate Markings	Description	HDS No.	HDF No.	Each	HDW No.	Each	HD No.	Each	HDCE No.	Each
Start Stop Fast Slow	Std. 2 Pt. Std. 2 Pt. Std. 2 Pt. Std. 2 Pt.	1289 081	....	$36.00	....	$53.00	....	$90.00	....	$90.00

Selector Switches

Legend Plate Markings	Description	HDS No.	HDF No.	Each	HDW No.	Each	HD No.	Each	HDCE No.	Each
Hand-Auto	2 Pos. SPDT	1345 379	....	$14.00	1605 922	$26.00	....	$30.00	....	$30.00
Start-Stop	2 Pos. SPDT	1033 331	1033 416	14.00	1605 896	26.00	1631 928	30.00	....	30.00
Slow-Fast	2 Pos. SPDT	1033 334	1033 417	14.00	1605 800	26.00	....	30.00	....	30.00
Stop-Run	2 Pos. SPDT	....	....	14.00	1605 859	26.00	....	30.00	....	30.00
Run-Inch	2 Pos. SPDT	....	....	14.00	1605 921	26.00	....	30.00	....	30.00
Stop-Run	2 Pos. DPST	1033 329	1033 414	14.00	....	26.00	....	30.00	....	30.00
Off-On	2 Pos. DPST	1033 330	1033 415	14.00	1605 923	26.00	....	30.00	....	30.00
On-Off	2 Pos. DPST	....	....	14.00	....	26.00	1631 929	30.00	....	30.00
Stop-Start	2 Pos. DPST	....	....	14.00	1605 860	26.00	....	30.00	....	30.00
Hand-Auto	2 Pos. DPST	....	1169 275	14.00	....	26.00	....	30.00	....	30.00
Hand-Off-Auto	3 Pos. SPDT	1033 328	1033 413	14.00	1605 858	26.00	1631 927	30.00	1588 405	30.00
Hand-Off-Auto	3 Pos. SPDT Lock Device at Off	....	....	.....	1605 925	29.00	....	.....	....	.....

*Does not include outlet box. †Approved with or without oil; price is the same for with or without oil.

Outlet Boxes

Panel Mounting No.	Each	Plaster Wall Mounting No.	Each	No. Units
1106 205	$6.00	1018 726	$6.00	1
1106 206	6.00	1018 727	6.00	2
1106 207	9.00	1018 728	9.00	3
1106 208	9.00	1018 729	9.00	4
1106 209	11.00	1018 730	11.00	5
1106 210	11.00	1018 731	11.00	6

Contact Symbols

Standard 2 Pt. SPDT	Selector Switch 2 Pos. SPDT	Selector Switch 3 Pos. SPDT
Rotary Latch 2 Pt. SPDT	Selector Switch 2 Pos. DPST	Maintained DPDT

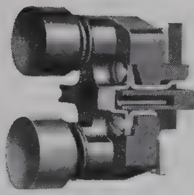
Ordering Information

When ordering, specify class number, type of unit and nameplate, marking from top to bottom; operating voltage for indicating lamps, if any, and other optional features desired. Enter separate item for outlet box, if required.

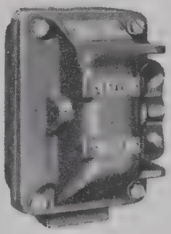
Type SD-2 Westinghouse Standard Duty Push-Buttons

Class 15-020—For A.C. and D.C. Pilot Control Circuits

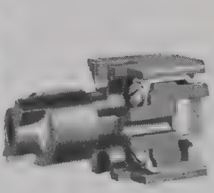
2-Button Station



2-Button Unit



Water and Dust-Tight Station



Selector Switch Unit

Designed for use in the control circuits of magnetic controllers up to and including size 4 on A.C., and D.C. controllers using contactors up to and including the 150-ampere size. The double-break silver contacts and substantial construction make these stations suitable for rough usage such as on machine tool and similar applications.

Available as momentary contact, spring-return units, or as maintaining contact units of the selector switch type.

Available for surface mounting with standard sheet steel or water and dust tight cases; one and two unit stations available for flush mounting. Momentary contact units and rotary 3-position selector switch units are available without cases.

Stop button is red; all others black.

Single Button Station. Provides one double break normally open or normally closed spring return button.

Two Button Stations. Furnished with standard start-stop push-button; providing one normally open and one normally closed contact of spring return type. The station includes a connector between the terminals as required for three-wire control. Connector can be removed when two or more push-button stations are used with one starter. Also available providing two normally open momentary contact spring return units for reversing service where the machine operates only while the button is held down.

Three Button Stations. Provide two double-circuit, normally open and normally closed spring-return units, and one normally closed unit. Station is the standard control station for reversing applications.

Push-buttons with Safety Latch. Permits circuit to be held or locked open. The latch provides protection for the operator against unexpected starting of the motor.

Rotary Selector Switch. Designed for use as a control switch on circuits controlled by an automatic master switch. Can be used also for a maintained-contact control station providing low voltage release. The center position of the switch is off while the left and right positions close and maintain independent circuits.

Ratings

Voltage A.C.	*Maximum Interrupting Capacity Amperes	Voltage D.C.	*Maximum Interrupting Capacity Amperes
110–125	30	115–125	1.10
220–250	15	230–250	.55
440–480	7	550–600	.20
550–600	5	....	...

*Continuous current carrying capacity, 10 amperes.

When ordering, specify class & No.

Push-Button Stations

No. of Buttons per Station	Legend Plate Markings (Top to Bottom)	Surface Mounting —(N.E.M.A. Type 1)— No.	Surface Mounting Each	†Flush Mounting —(N.E.M.A. Type 1-B)— No.	†Flush Mounting Each	Water-Tight and Dust-Tight (N.E.M.A. Types IV & V) No.	Water-Tight and Dust-Tight Each
1	Start	1246475	$6.00	1253067	$7.50	1246487	$19.00
1	Stop	1246476	6.00	1253068	7.50	1246488	19.00
1	‡Stop	1246477	9.00	....	.....	....	.....
1	§Stop—Start	1246478	6.00	..‡‡...	7.50	....	.....
1	§Off—On	1246479	6.00	..‡‡...	7.50	....	.....
1	§Hand—Off—Auto	1246480	6.00	1315400	7.50	....	.....
2	Start—Stop	1246481	6.00	1253069	7.50	....	.....
2	Start—Stop	....	.....	....	.....	‖1289312	19.00
2	‡Start—Stop	1246482	9.00	..‡‡...	10.50	....	.....
2	¶Start—Stop	....	.....	....	.....	1400772	19.00
2	Up—Down	1246483	7.50	..‡‡...	9.00	..‡‡...	19.00
2	Forward—Reverse	1246484	7.50	..‡‡...	9.00	..‡‡...	19.00
2	Open—Close	1246485	7.50	..‡‡...	9.00	..‡‡...	19.00
2	Raise—Lower	1357507	7.50	..‡‡...	9.00	..‡‡...	19.00
3	**Forward—Reverse—Stop	1246489	12.00	....	.....	....	.....
3	**Up—Down—Stop	1246490	12.00	....	.....	....	.....
3	**Open—Close—Stop	1246491	12.00	....	.....	....	.....
3	**Fast—Slow—Stop	1264236	12.00	....	.....	....	.....
3	110-V. Lamp—Start—Stop	1720432	22.00	....	.....	....	.....

Push-Button Units

No. of Buttons per Unit	Description	Color of Buttons	No.	Each
1	Single Button, Two Circuit Unit	Black	1246468	$3.00
1	Single Button, Two Circuit Unit	Red	1357671	3.00
1	Single Button, Normally Open Unit	Black	1246469	3.00
1	Single Button, Normally Closed Unit	Red	1246470	3.00
1	Selector Switch Unit, Single Pole Double Throw, 3 Position	Black	1246467	3.00
2	Two Button, Normally Open Units	Black	1246465	5.50
2	††Two Button, One Normally Open and One Normally Closed with Connector	1 Red & 1 Black	1246466	3.00

†No outlet box included. ‡Has safety latch on stop button. §Has single pole, double throw selector switch. ‖With mounting feet. ¶Maintained contact. **Can be furnished with latch on stop button, add $3.00 to price. ††Connector may be removed. ‡‡Order by using corresponding surface mounting No. and specify whether flush mounting or water and dust tight types are desired.

Special legend plate markings are available, add $1.50 each.

Westinghouse Heater Coil Application Data

For Thermal Overload Relays
Heaters For Manual Starters

Selection Data: The data listed in these tables is for an enclosed starter operating with 40 C. rated motor in approximately same room temperature as starter. For 50 C. or 55 C. rated motor, select heater one size smaller than that shown (but current rating must always be above the full load current of the motor). When ambient of enclosed starter and motor differ, select heaters one size larger than indicated in the table for 15 C. that starter ambient is above motor, or one size smaller for each 15 C. that starter ambient is below motor ambient. Heaters as designated in the table provide motors with protection between 115 per cent to 125 per cent of their full load current. When protection at maximum of 115 per cent motor full load current is required, use one size smaller heater.

Number Heaters Used: A.C. single phase use one heater and A.C. three phase starters use two heaters for standard starters.

Application Data: Overload relays are designed to protect motors against excessive currents which might damage the motor. They do not provide short circuit protection for motor or starter. These relays open the starter contacts to remove the excessive current from the motor.

Motor Full Load Current: Motor full load current should be selected from nameplate if possible.

Heater Tables

Class 10-023 Motor Centinel

Full Load Current of Motor Amperes	Heater No.
.40 to .45	1532 931
.46 to .52	1532 932
.53 to .60	1532 933
.61 to .69	1532 934
.70 to .79	1532 935
.80 to .91	1532 936
.92 to 1.03	1532 937
1.04 to 1.20	1532 938
1.21 to 1.38	1532 939
1.39 to 1.55	1532 940
1.6 to 1.8	1532 941
1.9 to 2.0	1532 942
2.1 to 2.3	1532 943
2.4 to 2.7	1532 944
2.8 to 3.1	1532 945
3.2 to 3.6	1532 946
3.7 to 4.2	1532 947
4.3 to 4.9	1532 948
5.0 to 5.6	1532 949
5.7 to 6.5	1532 950
6.6 to 7.5	1532 951
7.6 to 8.5	1532 952
8.6 to 9.9	1532 953
10.0 to 11.3	1532 954
11.4 to 13.0	1532 955

Classes 10-100, 10-110, 10-130, Motor Watchman

Full Load Current of Motor Amperes	Heater No.	Heater Code Marking
0.39 to 0.43	1129 372	X 0.49
0.44 to 0.49	1129 373	Y 0.55
0.50 to 0.54	1129 374	Z 0.63
0.55 to 0.62	966 465	AA 0.71
0.63 to 0.71	966 466	AB 0.82
0.72 to 0.79	966 467	AC 0.93
0.80 to 0.89	966 468	AD 1.0
0.90 to 0.99	966 469	AE 1.1
1.00 to 1.04	966 470	AF 1.2
1.05 to 1.18	966 471	AG 1.4
1.19 to 1.32	966 472	AH 1.5
1.33 to 1.49	966 473	AI 1.7
1.50 to 1.71	966 474	AK 1.9
1.72 to 1.89	966 475	AL 2.1
1.90 to 2.09	966 476	AM 2.5
2.10 to 2.35	966 477	AN 2.7
2.36 to 2.65	966 478	AO 3.0
2.66 to 2.98	966 479	AP 3.4
2.99 to 3.35	966 480	AR 3.8
3.36 to 3.75	966 481	AS 4.3
3.76 to 4.21	966 482	AT 4.8
4.22 to 4.71	966 483	AU 5.4
4.72 to 5.33	966 484	AW 6.1
5.34 to 5.94	966 485	AX 6.8
5.95 to 6.63	966 486	AY 7.7
6.64 to 7.52	966 487	AZ 8.5
7.53 to 8.51	966 488	BA 9.6
8.52 to 9.31	966 489	BB 11
9.32 to 10.5	966 490	BC 12
10.6 to 11.5	966 491	BD 13
11.6 to 12.4	966 492	BE 15
12.5 to 13.4	966 493	BF 16
13.5 to 14.9	966 494	BG 18
15.0 to 17.5	966 495	BH 19
17.6 to 18.2	966 496	BI 21
18.3 to 19.0	966 497	BK 23
19.1 to 20.5	966 498	BL 25
20.6 to 22.6	966 499	BM 27

Class 10-600 Type MB Auto-Starters Table 36.2 Size 2 Starter With MW21 Relay

*Full Load Current of Motor Amperes	Heater No.	Heater Code Marking
4.75 to 5.34	966 484	AW 6.1
5.35 to 5.96	966 485	AX 6.8
5.97 to 6.75	966 486	AY 7.7
6.76 to 7.69	966 487	AZ 8.5
7.70 to 8.55	966 488	BA 9.6
8.56 to 9.59	966 489	BB 11
9.60 to 10.7	966 490	BC 12
10.8 to 11.6	966 491	BD 13
11.7 to 13.0	966 492	BE 14
13.1 to 13.8	966 493	BF 16
13.9 to 15.7	966 494	BG 18
15.8 to 17.0	966 495	BH 19
17.1 to 18.7	966 496	BI 21
18.8 to 20.4	966 497	BK 23
20.5 to 22.7	966 498	BL 25
22.8 to 25.9	966 499	BM 27
26.0 to 29.5	1040 588	BN 29
29.6 to 33.7	974 084	BO 31
33.8 to 38.3	1040 589	BR 36
38.4 to 43.3	1040 590	BS 40
43.4 to 47.2	1265 536	BT 47

Table 36.3 Size 3 Starter With MW-31 Relay

*Full Load Current of Motor Amperes	Heater No.	Heater Code Marking
45.0 to 50.4	1265 537	BU 54
50.5 to 57.1	1265 538	BX 61
57.2 to 61.5	1265 539	BY 65
61.6 to 69.1	1597 771	CA
69.2 to 75.9	1597 772	CB
76.0 to 82.4	1597 773	CC
82.5 to 90.0	1597 774	CD

Table 36.4 Size 4 Starter With MW-41 Relay

*Full Load Current of Motor Amperes	Heater No.	Heater Code Marking
68.4 to 77.5	1597 771	CA
77.6 to 86.5	1597 772	CB
86.6 to 93.5	1597 773	CC
93.6 to 100	1597 774	CD
101 to 109	1597 775	CE
110 to 118	1597 776	CF
119 to 130	1597 777	CG
131 to 142	1597 778	CH

Class 10-600 Type MB Auto-Starters (Cont'd.) Table 36.5 Size 5 Starter With MW 51 Relay

*Full Load Current of Motor Amperes	Heater No	Heater Code Marking
70.0 to 79.4	1597 771	CA
79.5 to 87.9	1597 772	CB
88.0 to 95.9	1597 773	CC
96.0 to 102	1597 774	CD
103 to 110	1597 775	CE
111 to 121	1597 776	CF
122 to 133	1597 777	CG
134 to 141	1597 778	CH
142 to 151	1597 779	CI
152 to 161	1597 780	CJ
162 to 181	1745 083	CG,CG
182 to 197	1745 084	CH,CH
198 to 216	1745 085	CI,CI

Table 37.5 Size 5L Starter With MW-51 Relay

*Full Load Current of Motor Amperes	Heater No	Heater Code Marking
69.1 to 77.5	1597 771	CA
77.6 to 85.4	1597 772	CB
85.5 to 95.9	1597 773	CC
96.0 to 107	1597 774	CD
108 to 121	1597 775	CE
122 to 134	1597 776	CF
135 to 146	1597 777	CG
147 to 160	1597 778	CH
161 to 170	1597 779	CI
171 to 184	1597 780	CJ
185 to 199	1745 083	CG,CG
200 to 217	1745 084	CH,CH
218 to 243	1745 085	CI,CI
244 to 271	1747 445	CJ,CJ
272 to 291	1747 446	CI,CI,CI
292 to 325	1747 447	CJ,CJ,CJ

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* With 125 per cent overload protection.

Westinghouse Heater Coil Application Data

For Thermal Overload Relays

Heaters for Magnetic Starters

			Class 11-210		Classes 11-200-N, 11-203-N, 11-204-N, 11-206-N, 11-210-N, 11-213-N, 11-214-N, 11-216-N, 11-230-N, 11-950-N			
			*Size 00		Sizes, 0, 1, 1½		Size 2	
Heater No.	Heater Code Marking		†Table 1 Open	†Table 2 Enclosed	†Table 15 Open	†Table 16 Enclosed	†Table 18 Open	†Table 19 Enclosed
1129 372	X	.49	0.50 to 0.56	0.45 to 0.49	0.45 to 0.49	.39 to .43	0.45 to 0.49	.39 to .43
1129 373	Y	.55	0.57 to 0.64	0.50 to 0.56	0.50 to 0.56	.44 to .49	0.50 to 0.56	.44 to .49
1129 374	Z	.63	0.65 to 0.71	0.57 to 0.62	0.57 to 0.62	.50 to .56	0.57 to 0.62	.50 to .56
966 465	AA	.71	0.72 to 0.79	0.63 to 0.71	0.63 to 0.71	.57 to .65	0.63 to 0.71	.57 to .65
966 466	AB	.82	0.80 to 0.89	0.72 to 0.79	0.72 to 0.79	.66 to .73	0.72 to 0.79	.66 to .73
966 467	AC	.93	0.90 to 0.99	0.80 to 0.89	0.80 to 0.89	.74 to .81	0.80 to 0.89	.74 to .81
966 468	AD	1.0	1.00 to 1.04	0.90 to 0.99	0.90 to 0.99	.82 to .92	0.90 to 0.99	.82 to .92
966 469	AE	1.1	1.05 to 1.18	1.00 to 1.04	1.00 to 1.07	.93 to 1.02	1.00 to 1.07	.93 to 1.02
966 470	AF	1.2	1.19 to 1.32	1.05 to 1.18	1.08 to 1.18	1.03 to 1.11	1.08 to 1.18	1.03 to 1.11
966 471	AG	1.4	1.33 to 1.49	1.19 to 1.32	1.19 to 1.32	1.12 to 1.21	1.19 to 1.32	1.12 to 1.21
966 472	AH	1.5	1.50 to 1.71	1.33 to 1.49	1.33 to 1.49	1.22 to 1.36	1.33 to 1.49	1.22 to 1.36
966 473	AI	1.7	1.72 to 1.89	1.50 to 1.71	1.50 to 1.71	1.37 to 1.53	1.50 to 1.71	1.37 to 1.53
966 474	AK	1.9	1.90 to 2.09	1.72 to 1.89	1.72 to 1.89	1.54 to 1.76	1.72 to 1.89	1.54 to 1.76
966 475	AL	2.1	2.10 to 2.35	1.90 to 2.09	1.90 to 2.09	1.77 to 1.95	1.90 to 2.09	1.77 to 1.95
966 476	AM	2.5	2.36 to 2.65	2.10 to 2.35	2.10 to 2.35	1.96 to 2.15	2.10 to 2.35	1.96 to 2.12
966 477	AN	2.7	2.66 to 2.98	2.36 to 2.65	2.36 to 2.65	2.16 to 2.42	2.36 to 2.65	2.16 to 2.45
966 478	AO	3.0	2.99 to 3.35	2.66 to 2.98	2.66 to 2.98	2.43 to 2.73	2.66 to 2.98	2.43 to 2.73
966 479	AP	3.4	3.36 to 3.75	2.99 to 3.35	2.99 to 3.35	2.74 to 3.07	2.99 to 3.35	2.74 to 3.07
966 480	AR	3.8	3.76 to 4.21	3.36 to 3.75	3.36 to 3.75	3.08 to 3.45	3.36 to 3.75	3.08 to 3.45
966 481	AS	4.3	4.22 to 4.71	3.76 to 4.21	3.76 to 4.21	3.46 to 3.86	3.76 to 4.21	3.46 to 3.86
966 482	AT	4.8	4.72 to 5.33	4.22 to 4.71	4.22 to 4.71	3.87 to 4.33	4.22 to 4.71	3.87 to 4.33
966 483	AU	5.4	5.34 to 5.94	4.72 to 5.33	4.72 to 5.33	4.34 to 4.85	4.72 to 5.33	4.34 to 4.85
966 484	AW	6.1	5.95 to 6.63	5.34 to 5.94	5.34 to 5.94	4.86 to 5.49	5.34 to 5.94	4.86 to 5.49
966 485	AX	6.8	6.64 to 7.52	5.95 to 6.63	5.95 to 6.63	5.50 to 6.13	5.95 to 6.63	5.50 to 6.13
966 486	AY	7.7	7.53 to 8.51	6.64 to 7.52	6.64 to 7.52	6.14 to 6.83	6.64 to 7.52	6.14 to 6.83
966 487	AZ	8.5	8.52 to 9.31	7.53 to 8.51	7.53 to 8.51	6.84 to 7.74	7.53 to 8.51	6.84 to 7.74
966 488	BA	9.6	9.32 to 10.5	8.52 to 9.31	8.52 to 9.31	7.75 to 8.75	8.52 to 9.31	7.75 to 8.75
966 489	BB	11	10.6 to 11.5	9.32 to 10.5	9.32 to 10.5	8.76 to 9.57	9.32 to 10.5	8.76 to 9.57
966 490	BC	12	11.6 to 12.4	10.6 to 11.5	10.6 to 11.5	9.58 to 10.7	10.7 to 11.5	9.58 to 10.7
966 491	BD	13	12.5 to 13.4	11.6 to 12.4	11.6 to 12.4	10.8 to 11.8	11.6 to 12.4	10.8 to 11.8
966 492	BE	14	13.5 to 14.9	12.5 to 13.4	12.5 to 13.4	11.9 to 12.8	12.5 to 13.4	11.9 to 12.8
966 493	BF	16	15.0 to 17.5	13.5 to 14.9	13.5 to 14.9	12.9 to 13.8	13.5 to 14.9	12.9 to 13.8
966 494	BG	18	17.6 to 18.2	15.0 to 17.5	15.0 to 17.5	13.9 to 15.4	15.0 to 17.5	13.9 to 15.4
966 495	BH	19	18.3 to 19.0	17.6 to 18.2	17.6 to 18.2	15.5 to 16.8	17.6 to 18.2	15.5 to 16.8
966 496	BI	21	19.1 to 20.5	18.3 to 19.0	18.3 to 19.5	16.9 to 18.4	18.3 to 19.5	16.9 to 18.4
966 497	BK	23	20.6 to 22.6	19.1 to 20.5	19.6 to 20.5	18.5 to 20.1	19.6 to 20.5	18.5 to 20.1
966 498	BL	25	22.7 to 24.9	20.6 to 22.6	20.6 to 22.6	20.2 to 21.3	20.6 to 22.6	20.2 to 21.3
966 499	BM	27	25.0 to 28.4	22.7 to 25.7	22.7 to 25.7	21.4 to 23.3	22.7 to 25.7	21.4 to 23.3
1040 588	BN	29	28.5 to 32.2	25.8 to 28.4	25.8 to 28.4	23.4 to 24.9	25.8 to 28.4	23.4 to 24.9
974 084	BO	31	32.3 to 35.	28.5 to 32.7	28.5 to 32.7	25.0 to 28.4	28.5 to 32.7	25.0 to 28.4
1040 589	BR	36	....	32.8 to 35.	32.8 to 37.1	28.5 to 32.2	32.8 to 37.1	28.5 to 32.2
1040 590	BS	40	....	....	37.2 to 43.2	32.3 to 36.7	37.2 to 43.1	32.3 to 36.7
1265 536	BT	47	....	....	....	....	43.2 to 49.5	36.8 to 41.5
1265 537	BU	54	....	....	....	....	49.6 to 55.9	41.6 to 47.5
1265 538	BX	61	....	....	....	....	56.0 to 59.6	47.6 to 51.9
1265 539	BY	65	....	....	....	....	59.7 to 65.1	52.0 to 56.7
1265 540	BZ	71	....	....	....	....	65.2 to 74.7	56.8 to 61.7

*Type Dn uses MW-1 relay. †With 125 per cent overload protection.

Westinghouse Heater Coil Application Data

For Thermal Overload Relays
Heaters for Magnetic Starters

		Size 3		
Heater No.	Heater Code Marking	Classes 11-200-N 11-210-N *11-400 *11-600 Table 25.3 Open	Classes 11-203-N 11-204-N 11-206-N 11-210-N 11-213-N 11-214-N 11-400 11-600 11-216-N 11-950-N Table 26.3 Enlosed	Class 11-200-N Table 27.3 Enclosed
966 492	BE 14	14.9 to 16.5	13.4 to 14.4	11.4 to 12.8
966 493	BF 16	16.6 to 17.3	14.5 to 15.5	12.9 to 13.8
966 494	BG 18	17.4 to 19.1	15.6 to 17.2	13.9 to 15.4
966 495	BH 19	19.2 to 20.7	17.3 to 18.7	15.5 to 16.8
966 496	BI 21	20.8 to 23.1	18.8 to 20.8	16.9 to 18.4
966 497	BK 23	23.2 to 24.7	20.9 to 22.1	18.5 to 19.5
966 498	BL 25	24.8 to 27.1	22.2 to 24.2	19.6 to 21.3
966 499	BM 27	27.2 to 29.5	24.3 to 26.3	21.4 to 23.3
1040 588	BN 29	29.6 to 32.7	26.4 to 28.7	23.4 to 24.9
974 084	BO 31	32.8 to 36.7	28.8 to 32.7	25.0 to 28.4
1040 589	BR 36	36.8 to 40.7	32.8 to 35.9	28.5 to 32.2
1040 590	BS 40	40.8 to 45.5	36.0 to 40.7	32.3 to 36.2
1265 536	BT 47	45.6 to 51.9	40.8 to 46.3	36.3 to 40.9
1265 537	BU 54	52.0 to 58.3	46.4 to 52.7	41.0 to 46.5
1265 538	BX 61	58.4 to 65.4	52.8 to 58.3	46.6 to 51.9
1265 539	BY 65	65.5 to 73.4	58.4 to 64.7	52.0 to 56.7
1265 540	BZ 71	73.5 to 81.5	64.8 to 72.7	56.8 to 63.9
1597 771	CA	81.6 to 91.1	72.8 to 81.9	64.0 to 73.4
1597 772	CB	91.2 to 101	82.0 to 90.4	73.5 to 79.9
1597 773	CC	102 to 110	90.5 to 98.4	80.0 to 86.3
1597 774	CD	....	....	86.4 to 93.5
1597 775	CE	....	....	93.6 to 100

		Size 4		
Heater No.	Heater Code Marking	Classes 11-200-N 11-210-N Table 25.4 Open	Classes 11-203-N 11-204-N 11-206-N 11-210-N 11-213-N 11-214-N 11-216-N 11-400 11-600 Table 26.4 Enclosed	Class 11-200-N Table 27.4 Enclosed
966 492	BE 14	14.9 to 16.5	13.4 to 14.4	11.4 to 12.8
966 493	BF 16	16.6 to 17.3	14.5 to 15.5	12.9 to 13.8
966 494	BG 18	17.4 to 19.1	15.6 to 17.2	13.9 to 15.4
966 495	BH 19	19.2 to 20.7	17.3 to 18.7	15.5 to 16.8
966 496	BI 21	20.8 to 23.1	18.8 to 20.8	16.9 to 18.4
966 497	BK 23	23.2 to 24.7	20.9 to 22.1	18.5 to 19.5
966 498	BL 25	24.8 to 27.1	22.2 to 24.2	19.6 to 21.3
966 499	BM 27	27.2 to 29.5	24.3 to 26.3	21.4 to 23.3
1040 588	BN 29	29.6 to 32.7	26.4 to 28.7	23.4 to 24.9
974 084	BO 31	32.8 to 36.7	28.8 to 32.7	25.0 to 28.4
1040 589	BR 36	36.8 to 40.7	32.8 to 35.9	28.5 to 32.2
1040 590	BS 40	40.8 to 45.5	36.0 to 40.7	32.3 to 36.2
1265 536	BT 47	45.6 to 51.9	40.8 to 46.3	36.3 to 40.9
1265 537	BU 54	52.0 to 58.3	46.4 to 52.7	41.0 to 46.5
1265 538	BX 61	58.4 to 65.4	52.8 to 58.3	46.6 to 51.9
1265 539	BY 65	65.5 to 73.4	58.4 to 64.7	52.0 to 56.7
1265 540	BZ 71	73.5 to 81.5	64.8 to 72.7	56.8 to 63.9
1597 771	CA	81.6 to 91.1	72.8 to 81.9	64.0 to 73.4
1597 772	CB	91.2 to 101	82.0 to 90.4	73.5 to 79.9
1597 773	CC	103 to 110	90.5 to 98.4	80.0 to 86.3
1597 774	CD	111 to 120	98.5 to 106	86.4 to 93.5
1597 775	CE	121 to 131	107 to 115	93.6 to 100
1597 776	CF	132 to 144	116 to 126	101 to 108
1597 777	CG	145 to 160	127 to 137	109 to 116
1597 778	CH	....	138 to 150	117 to 125
1597 779	CI	....	....	126 to 137
1597 780	CJ	....	....	138 to 148

*Size 2.

Westinghouse Motor Terminal Amperes at Full Load

Average Values for All Speeds and Frequencies

Current values are for motors with normal torque characteristics. If exact values are required, obtain actual full load current amperes from motor to which control is to be applied. Motors for special low speed or high torque may require higher current; in this case check motor nameplate.

	Single Phase A.C.		Squirrel Cage, A.C. 220 Volts		
Hp.	115 Volts	230 Volts	3-Ph.	2-Ph. 4-Wire	2-Ph. 3-Wire
***⅙**	2.9	1.5	......	......	.....
***¼**	3.7	1.9	......	......	.....
†½	....	....	2.55	2.2	3.0
†¾	13.8	6.9	3.61	3.1	4.3
***1**	16	8	3.42	2.96	4.1
1½	18.4	9.2	4.68	4	5.6
2	24	12	6.2	5.4	7.4
3	34	17	8.63	7.47	10.3
5	‡56	28	14	12.1	16.8
7½	‡64	32	20.6	17.8	24.7
10	‡85	42.5	26.8	23.2	32.2
15	....	....	39.3	34	47.2
20	....	....	49	42.4	58.8
25	....	....	60.4	52.3	72.5
30	....	....	72.8	63.0	72.8
40	....	....	100	86.6	120
50	....	....	121	104.8	120
60	....	....	147	127.3	.....
75	....	....	180	155.9	216
100	....	....	239	207	286.8
125	....	....	296	256.3	355.2
150	....	....	355	307.4	426.0
200	....	....	471	407.9	565.2

	Squirrel Cage, A.C.					
	440 Volts			550 Volts		
Hp.	3-Ph.	2-Ph. 4-Wire	2-Ph. 3-Wire	3-Ph.	2-Ph. 4-Wire	2-Ph. 3-Wire
½	1.28	1.1	1.5	1.02	.88	1.2
¾	1.8	1.6	2.2	1.4	1.2	1.7
1	1.71	1.5	2.0	1.37	1.8	2.4
1½	2.34	2.0	2.8	1.87	1.6	3.36
2	3.1	2.7	3.7	2.4	2.0	2.9
3	4.31	3.7	5.1	3.4	2.9	4.1
5	7	6.0	8.4	5.6	4.8	6.7
7½	10.3	8.9	12.4	8.2	7.1	9.8
10	13.4	11.6	16.0	10.8	9.3	13.0
15	19.7	17.0	23.6	15.6	13.5	18.7
20	24.5	21.2	29.4	20	17.3	24.0
25	30.2	26.1	36.2	24.2	20.9	29
30	36.4	31.5	43.7	29	25	34.8
40	50	43.3	60.0	40	34.6	48
50	60.5	52.4	72.6	48.4	4.9	48.5
60	73.5	63.6	.....	58.8	50.9	70.6
75	90	77.9	108	72	62.3	86.4
100	119.5	103.5	143.4	95.6	82.8	114.7
125	148	128.2	177.6	118.4	105.6	142
150	178	154.1	213.6	142	123.0	170.4
200	236	204.4	283.2	188.4	166.3	226

*Full load values of 1/16, ¼ and 1 to 200 hp. based on motor speed of 1800 rpm.

†Values based on motor speed of 900 rpm.

‡Applies to Westinghouse CAP-2 motor only. For other makes use 100 amperes, 115 volts; 50 amperes, 230 volts.

We carry in stock a complete supply of Chromalox Heating units and repair parts.

★

Replacement elements for all heating units can be supplied from stock.

Westinghouse Electronic Tubes

Phototubes—Light Sensitive Tubes

No. WL-931A

No. WL-928

No. WL-927

No. SR-50

A Phototube is an electronic device which permits the passage of electrons from cathode to anode when the cathode is exposed to visible, ultra-violet or infra-red light.

Suited to the control of lighting, and to starting, stopping and controlling mechanical operations. An essential part of the apparatus used for counting and sorting such objects as cartons and sheets of paper. Can be used for keeping printing presses in register, rejecting incorrectly labeled packages, opening doors, detecting and recording the density of smoke, controlling the temperature of furnaces and measuring and controlling the temperature of materials during manufacture.

No.	Each	Ship. Wt. Lb.
WL-1P29	$2.95	3
*SR-50	7.35	½
*SR-53	10.50	½
*SK-60	7.35	½
*SK-63	10.50	½
WL-734	2.75	½
WL-767	82.50	3

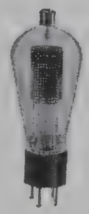
*For replacement only.

No.	Each	Ship. Wt. Lb.
WL-773	$82.50	3
WL-775	82.50	3
WL-789	137.50	3
WL-868	2.50	3
WL-917	3.50	3
WL-918	2.85	3
WL-919	3.50	3

No.	Each	Ship. Wt. Lb.
WL-920	$4.15	3
WL-921	1.95	3
WL-922	1.95	3
WL-923	2.05	3
WL-924	2.60	3
WL-925	2.15	3
WL-926	2.90	3

No.	Each	Ship. Wt. Lbs.
WL-927	$2.50	3
WL-928	3.15	3
WL-929	1.75	3
WL-930	1.65	3
WL-931A	9.75	3
....	....	..
....	....	..

Thyratrons—Grid Controlled Rectifiers


No. KU-627

No. KU-676

No. WL-678

No. WL-2050

A Thyratron permits countless start-and-stop operations and the closing and opening of circuits with complete silence, without moving parts. Varying d.c. voltage on a grid between anode and cathode controls d.c. current output of rectifier smoothly, accurately, instantaneously.

This feature is of basic importance in R-F heating, especially dielectric heating, or in any process requiring strict control of the power going to the generator, Thyratron rectifiers have many applications.

No.	Each	Ship. Wt. Lb.
WL-2D21	$2.00	½
WL-3C23	12.50	3
WL-33	21.00	7
WL-41	182.00	8
WL-81A	16.00	2
WL-105	48.00	7
WL-172	50.00	7
WL-414	120.00	16

*For replacement only.

No.	Each	Ship. Wt. Lb.
WL-502A	$1.85	3
KU-610	22.00	1
*KU-618	15.75	1
WL-624	44.00	3
KU-627	17.25	2
KU-628	30.50	1
WL-629	10.00	½
WL-632B	23.00	2

No.	Each	Ship. Wt. Lb.
KU-636	$22.00	1½
WL-672A	26.50	2
KU-676	48.00	3
WL-677	48.00	3
WL-678	40.00	1½
*WL-759	18.00	1
WL-884	1.85	3
WL-885	2.00	3

No.	Each	Ship. Wt. Lbs.
WL-2050	$1.85	½
WL-5557/17	7.00	4
WL-5559/47	19.50	7
WL-5664	8.90	1
WL-5683	8.90	1
WL-5684	14.20	1
WL-5685	30.40	2¾
....	.....	...

Voltage Regulators

No. WL-OA3/VR75

A Voltage regulator tube is designed to furnish a supply of regulated voltage in a circuit under varying conditions.

This tube can also be adapted for use in relaxation oscillator circuits.

No.	Each	Ship. Wt. Lb.
WL-OA3/VR75	$1.35	3
WL-OC3/VR105	1.35	3
WL-OD3/VR150	1.30	3

Replacement. Each Westinghouse Electric Supply Co. house or distributor will stock locally all tubes required for replacement needs.

Protector Tubes

No. KX-642

A Protector tube is normally used for protecting supervisory control lines from high voltage surges which might endanger the insulation of instruments, transformers and similar equipment.

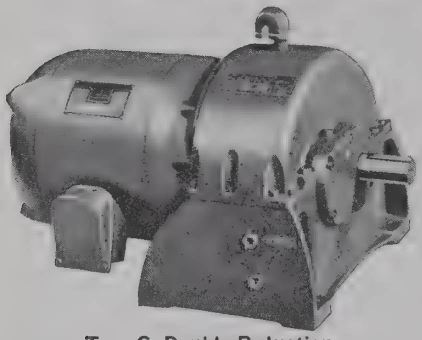
No.	Each	Ship. Wt. Lb.
KX-642	$12.60	½

Return Tube Procedure. All houses and distributors authorized to issue credit for any Westinghouse electronic tube that fails within warranty period of tube.

Westinghouse A.C. Squirrel-Cage Gearmotors

A.G.M.A. Class I
Horizontal Types A, C and E

With Types CSP and CS Motors—N.E.M.A. Design B, 3-Phase, 60-Cycle, 208, 220, 440, 550-Volt, Continuous Rated



Type C, Double Reduction with Life-Line Splash-proof Motor Frame Nos. 203-326

A self-contained drive consisting of a high speed Westinghouse motor and speed reducing unit.

For driving equipment of all kinds at steady load not exceeding normal rating of motor and 8 hours a day service. Moderate shock load where service is intermittent.

Gears are BPT heat-treated taper-hardened. Simplified design requires fewer parts, minimizes maintenance and provides easy access to all gear unit parts.

Available in three types of construction:

Type A—Single Reduction. Standard ratios, 1.22:1 to 6.25:1 inclusive.

Type C—Double Reduction. Standard ratios, 7.6:1 to 25.7:1 inclusive.

Type E—Double Reduction. Standard ratios, 31.2:1 to 58.3:1 inclusive.

Gearmotors with CSP Life-Line and CS open N.E.M.A. Design C, splash-proof, fan-cooled and explosion-proof motors also available.

When ordering, specify A.G.M.A. Class, output speed, frame size, horsepower and type of motor, phase, frequency, voltage, temperature rating, left or right-hand assembly.

Unit Size Designations

FIRST LETTER: Type of construction.

SECOND LETTER: Physical size of gearbox; ranging from E (smallest) to R (largest).

THIRD LETTER: A stands for Class I.

Output R.P.M. Full Load Speed	1-Hp. CSP			1½-Hp. CSP			2-Hp. CSP			3-Hp. CSP			5-Hp. CSP		
	Unit Size	Open Each	Totally Enclosed Each	Unit Size	Open Each	Totally Enclosed Each	Unit Size	Open Each	Totally Enclosed (Fan-Cooled) Each	Unit Size	Open Each	Totally Enclosed (Fan-Cooled) Each	Unit Size	Open Each	Totally Enclosed (Fan-Cooled) Each
640	AFA-203	$287.	$321.	AFA-204	$336.	$376.	AFA-224	$391.	$445.	AFA-225	$449.	$523.	AGA-254	$544.	$632.
520	AFA-203	291.	326.	AFA-204	340.	380.	AFA-224	395.	449.	AFA-225	456.	529.	AGA-254	557.	645.
420	AFA-203	295.	330.	AFA-204	349.	389.	AFA-224	405.	460.	AGA-225	466.	540.	AHA-254	571.	659.
350	AFA-203	301.	336.	AFA-204	359.	399.	AFA-224	416.	470.	AGA-225	479.	552.	AHA-254	586.	674.
280	AGA-203	310.	344.	AGA-204	372.	412.	AGA-224	431.	485.	AHA-225	500.	573.	AJA-254	609.	697.
230	CEA-203	322.	357.	CEA-204	389.	428.	CEA-224	449.	504.	CFA-225	519.	592.	CGA-254	636.	725.
190	CEA-203	337.	372.	CEA-204	405.	445.	CEA-224	470.	525.	CFA-225	544.	617.	CGA-254	668.	756.
155	CEA-203	352.	386.	CEA-204	422.	462.	CFA-224	489.	544.	CFA-225	571.	645.	CGA-254	701.	790.
125	CEA-203	371.	405.	CEA-204	443.	483.	CFA-224	517.	571.	CFA-225	603.	676.	CGA-254	741.	830.
100	CEA-203	390.	424.	CFA-204	468.	508.	CFA-224	546.	601.	EGA-225	638.	712.	EHA-254	785.	874.
84	CEA-203	404.	439.	CFA-204	487.	527.	CFA-224	569.	624.	EGA-225	668.	741.	EHA-254	823.	911.
68	CFA-203	429.	464.	CFA-204	515.	554.	EGA-224	601.	655.	EGA-225	708.	781.	EHA-254	876.	964.
56	EGA-203	450.	485.	EGA-204	546.	586.	EGA-224	636.	691.	EHA-225	750.	823.	EJA-254	926.	1014.
45	EGA-203	480.	515.	EGA-204	578.	617.	EHA-224	672.	727.	EHA-225	800.	874.	EJA-254	991.	1079.

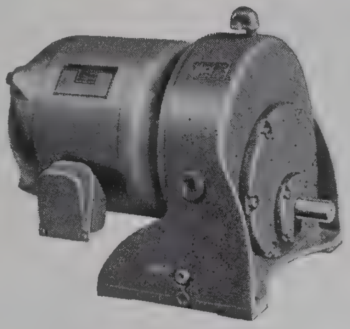
	7½-Hp. CSP			10-Hp. CSP			15-Hp. CSP			20-Hp. CSP			*25-Hp. CS		
			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)
640	AHA-284	$674.	$798.	AJA-324	$806.	$977.	AJA-326	$960.	$1130.	AKA-364	$1176.	$1422.	AKA-364	$1360.	$1658.
520	AHA-284	687.	811.	AJA-324	825.	995.	AKA-326	977.	1147.	AKA-364	1197.	1443.	AKA-364	1383.	1681.
420	AJA-284	704.	827.	AJA-324	844.	1014.	AKA-326	1004.	1174.	AKA-364	1226.	1472.	ALA-364	1419.	1717.
350	AJA-284	725.	848.	AJA-324	869.	1040.	AKA-326	1029.	1199.	ALA-364	1260.	1506.	ALA-364	1452.	1750.
280	AJA-284	752.	876.	AKA-324	907.	1077.	ALA-326	1073.	1243.	ALA-364	1306.	1552.	ALA-364	1513.	1811.
230	EHA-284	785.	909.	CHA-324	943.	1113.	CJA-326	1119.	1289.	CKA-364	1365.	1611.	CKA-364	1580.	1878.
190	EHA-284	825.	949.	CHA-324	987.	1157.	CJA-326	1176.	1346.	CKA-364	1428.	1674.	CKA-364	1652.	1950.
155	EHA-284	865.	989.	CHA-324	1035.	1205.	CJA-326	1235.	1405.	CKA-364	1497.	1743.	CKA-364	1729.	2028.
125	EHA-284	911.	1035.	CJA-324	1094.	1264.	CJA-326	1306.	1476.	CKA-364	1577.	1823.	CKA-364	1834.	2133.
100	EHA-284	970.	1094.	CJA-324	1159.	1329.	CJA-326	1386.	1556.	CKA-364	1674.	1919.	CLA-364	1946.	2244.
84	EJA-284	1014.	1138.	CJA-324	1216.	1386.	CKA-326	1457.	1628.	CLA-364	1762.	2008.	CLA-364	2038.	2336.
68	EJA-284	1079.	1203.	CJA-324	1292.	1462.	CKA-326	1550.	1720.	CLA-364	1867.	2113.	CLA-364	2168.	2466.
56	EJA-284	1145.	1268.	CKA-324	1367.	1537.	ELA-326	1642.	1812.	CLA-364	1982.	2228.	EMA-364	2303.	2601.
45	EKA-284	1224.	1348.	ELA-324	1464.	1634.	ELA-326	1764.	1934.	EMA-364	2121.	2367.	EMA-364	2477.	2775.

	*30-Hp. CS			*40-Hp. CS			*50-Hp. CS			*60-Hp. CS			*75-Hp. CS		
			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)
640	ALA-365	$1531.	$1884.	ALA-404	$1876.	$2323.	ALA-405	$2199.	$2879.	AMA-444	$2752.	$3584.	AMA-445	$3214.	$4345.
520	ALA-365	1556.	1909.	ALA-404	1932.	2379.	ALA-405	2247.	2926.	AMA-444	2804.	3636.	AMA-445	3290.	4420.
420	ALA-365	1600.	1953.	ALA-404	1968.	2416.	AMA-405	2309.	2989.	AMA-444	2885.	3717.	ANA-445	3384.	4515.
350	ALA-365	1646.	1999.	AMA-404	2048.	2495.	AMA-405	2374.	3053.	CLA-444	2978.	3810.	ANA-445	3489.	4620.
280	AMA-365	1712.	2064.	AMA-404	2110.	2557.	CLA-405	2468.	3148.	CLA-444	3098.	3930.	APA-445	3636.	4767.
230	CKA-365	1793.	2146.	CLA-404	2205.	2652.	CLA-405	2586.	3266.	CLA-444	3257.	4089.	CLA-445	3823.	4954.
190	CKA-365	1873.	2226.	CLA-404	2304.	2751.	CLA-405	2705.	3384.	CLA-444	3416.	4248.	CMA-445	4023.	5154.
155	CLA-365	1970.	2323.	CLA-404	2422.	2869.	CLA-405	2847.	3526.	CLA-444	3603.	4435.	CMA-445	4261.	5392.
125	CLA-365	2081.	2434.	CLA-404	2564.	3011.	CLA-405	3012.	3692.	CMA-444	3829.	4661.	ENA-445	4491.	5644.
100	CLA-365	2209.	2562.	CLA-404	2729.	3177.	EMA-405	3212.	3892.	CMA-444	4096.	4928.	ENA-445	4833.	5964.
84	CLA-365	2316.	2669.	EMA-404	2852.	3299.	EMA-405	3378.	4057.	ENA-444	4322.	5154.	ENA-445	5100.	6231.
68	EMA-365	2474.	2827.	EMA-404	3061.	3508.	ENA-405	3614.	4294.	ENA-444	4614.	5446.	EPA-445	5472.	6603.
56	EMA-365	2612.	2965.	ENA-404	3250.	3697.	ENA-405	3851.	4530.	EPA-444	4932.	5764.	EPA-445	5844.	6975.
45	ENA-365	2820.	3173.	EPA-404	3510.	3957.	EPA-405	4134.	4814.	ERA-444	5332.	6164.	ERA-445	6349.	7480.

*Unit sizes shown for open Class I Linestart motors only; unit sizes for totally enclosed fan-cooled motors on request.

Westinghouse A.C. Squirrel-Cage Gearmotors

A.G.M.A. Class II
Horizontal Types A, C and E



Type A, Single Reduction with Life-Line Open Motor Frame Nos. 203-326

With Types CSP and CS Motors—N.E.M.A. Design B, 3-Phase, 60-Cycle, 208, 220, 440, 550-Volt, Continuous Rated

A self-contained drive consisting of a high speed Westinghouse motor and speed reducing unit.

For steady loads not exceeding normal rating of motor and 24 hours a day service. Moderate shock loads for 8 hours a day.

Gears are BPT heat-treated taper-hardened. Simplified design requires fewer parts, minimizes maintenance and provides easy access to all gear unit parts.

Available in three types of construction:

Type A—Single Reduction. Standard ratios, 1.22:1 to 6:25:1 inclusive.

Type C—Double Reduction. Standard ratios, 7.6:1 to 25.7:1 inclusive.

Type E—Double Reduction. Standard ratios, 31.2:1 to 58.3:1 inclusive.

Gearmotors with CSP Life-Line and CS open N.E.M.A. Design C, splash-proof, fan-cooled and explosion-proof motors also available.

When ordering, specify A.G.M.A. Class, output speed, frame size, horsepower and type of motor, phase, frequency, voltage, temperature rating, left or right-hand.

Unit Size Designations

First Letter: Type of construction.

Second Letter: Physical size of gearbox; ranging from E (smallest to R (largest).

Third Letter: B stands for Class II.

Output R.P.M. Full Load Speed	1-Hp. CSP			1½-Hp. CSP			2-Hp. CSP			3-Hp. CSP			5-Hp. CSP		
	Unit Size	Open Each	Totally Enclosed Each	Unit Size	Open Each	Totally Enclosed Each	Unit Size	Open Each	Totally Enclosed (Fan-Cooled) Each	Unit Size	Open Each	Totally Enclosed (Fan-Cooled) Each	Unit Size	Open Each	Totally Enclosed (Fan-Cooled) Each
640	AFB-203	$321.	$356.	AFB-204	$376.	$416.	AFB-224	$438.	$492.	AGB-225	$505.	$579.	AHB-254	$611.	$699.
520	AFB-203	327.	361.	AFB-204	391.	421.	AFB-224	442.	497.	AGB-225	512.	586.	AHB-254	627.	715.
420	AFB-203	331.	365.	AFB-204	392.	432.	AGB-224	455.	509.	AGB-225	525.	599.	AHB-254	645.	733.
350	AFB-203	339.	374.	AFB-204	404.	444.	AGB-224	468.	523.	AHB-225	540.	613.	AJB-254	663.	751.
280	AGB-203	349.	383.	AGB-204	419.	459.	AHB-224	486.	541.	AHB-225	566.	639.	AJB-254	690.	778.
230	CEB-203	364.	399.	CEB-204	440.	480.	CFB-224	508.	563.	CFB-225	588.	662.	CGB-254	723.	812.
190	CEB-203	382.	417.	CEB-204	460.	500.	CFB-224	533.	588.	CFB-225	618.	692.	CGB-254	761.	849.
155	CEB-203	400.	435.	CFB-204	480.	520.	CFB-224	557.	611.	EGB-225	652.	726.	EHB-254	802.	890.
125	CEB-203	423.	458.	CFB-204	506.	546.	CFB-224	590.	645.	EGB-225	690.	763.	EHB-254	851.	939.
100	CFB-203	445.	480.	CFB-204	537.	576.	EGB-224	626.	680.	EGB-225	733.	806.	EHB-254	904.	992.
85	CFB-203	463.	498.	EGB-204	559.	599.	EGB-224	653.	708.	EHB-225	769.	842.	EHB-254	949.	1037.
68	CFB-203	494.	528.	EGB-204	592.	632.	EGB-224	692.	747.	EHB-225	817.	890.	EJB-254	1013.	1101.
56	EGB-203	520.	554.	EGB-204	630.	670.	EHB-224	735.	790.	EHB-225	868.	942.	EJB-254	1074.	1162.
45	EGB-203	554.	589.	EHB-204	669.	709.	EHB-224	778.	833.	EJB-225	929.	1003.	EKB-254	1153.	1241.

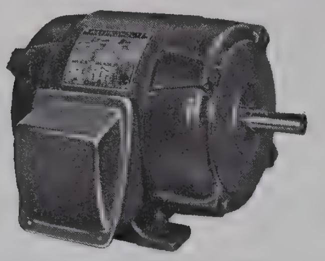
	7½-Hp. CSP			10-Hp. CSP			15-Hp. CSP			*20-Hp. CS			*25-Hp. CS		
			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)
640	AJB-284	$754.	$878.	AJB-324	$898.	$1068.	AKB-326	$1068.	$1238.	AKB-364	$1300.	$1546.	ALB-364	$1502.	$1800.
520	AJB-284	770.	894.	AJB-324	921.	1091.	AKB-326	1089.	1259.	ALB-364	1326.	1572.	ALB-364	1529.	1827.
420	AJB-284	790.	914.	AJB-324	944.	1114.	AKB-326	1121.	1292.	ALB-364	1362.	1608.	ALB-364	1573.	1871.
350	AJB-284	816.	940.	AKB-324	974.	1145.	ALB-326	1152.	1322.	ALB-364	1402.	1647.	ALB-364	1613.	1911.
280	AKB-284	848.	972.	ALB-324	1021.	1191.	ALB-326	1205.	1376.	AMB-364	1457.	1703.	AMB-364	1686.	1985.
230	EHB-284	889.	1013.	CHB-324	1064.	1234.	CJB-326	1261.	1431.	CKB-364	1529.	1775.	CKB-364	1768.	2066.
190	EHB-284	938.	1062.	CJB-324	1116.	1286.	CJB-326	1330.	1500.	CKB-364	1605.	1851.	CLB-364	1854.	2153.
155	EHB-284	986.	1110.	CJB-324	1175.	1345.	CJB-326	1401.	1571.	CKB-364	1689.	1935.	CLB-364	1949.	2247.
125	EJB-284	1042.	1166.	CJB-324	1246.	1416.	CKB-326	1488.	1658.	CLB-364	1786.	2032.	CLB-364	2076.	2374.
100	EJB-284	1113.	1237.	CJB-324	1325.	1495.	CKB-326	1584.	1755.	CLB-364	1903.	2148.	CLB-364	2210.	2508.
84	EJB-284	1166.	1289.	CKB-324	1393.	1563.	ELB-326	1671.	1841.	CLB-364	2010.	2255.	CLB-364	2322.	2620.
68	EJB-284	1245.	1369.	CKB-324	1485.	1655.	ELB-326	1782.	1952.	EMB-364	2137.	2382.	EMB-364	2480.	2778.
56	EKB-284	1324.	1448.	ELB-324	1577.	1747.	ELB-326	1894.	2064.	EMB-364	2276.	2522.	EMB-364	2642.	2940.
45	ELB-284	1420.	1544.	ELB-324	1694.	1864.	EMB-326	2041.	2211.	ENB-364	2443.	2689.	ENB-364	2853.	3151.

	*30-Hp. CS			*40-Hp. CS			*50-Hp. CS			*60-Hp. CS			*75-Hp. CS		
			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)			(Fan-Cooled)
640	ALB-365	$1687.	$2040.	ALB-404	$2060.	$2507.	AMB-405	$2409.	$3088.	AMB-444	$3014.	$3846.	AMB-445	$3511.	$4642.
520	ALB-365	1718.	2071.	AMB-404	2126.	2574.	AMB-405	2466.	3145.	ANB-444	3078.	3910.	ANB-445	3602.	4733.
420	ALB-365	1771.	2124.	AMB-404	2172.	2619.	AMB-405	2541.	3221.	ANB-444	3176.	4008.	APB-445	3717.	4848.
350	AMB-365	1827.	2180.	CLB-404	2227.	2714.	CLB-405	2620.	3299.	CLB-444	3288.	4120.	APB-445	3844.	4975.
280	CLB-365	1906.	2259.	CLB-404	2342.	2790.	CLB-405	2734.	3413.	CLB-444	3434.	4266.	CMB-445	4022.	5152.
230	CLB-365	2004.	2357.	CLB-404	2457.	2905.	CLB-405	2877.	3556.	CMB-444	3626.	4458.	CMB-445	4247.	5378.
190	CLB-365	2101.	2454.	CLB-404	2577.	3024.	EMB-405	3021.	3700.	CMB-444	3818.	4650.	CMB-445	4489.	5620.
155	CLB-365	2218.	2570.	CLB-404	2720.	3167.	EMB-405	3192.	3871.	CMB-444	4045.	4877.	ENB-445	4778.	5909.
125	CLB-365	2353.	2706.	EMB-404	2892.	3339.	EMB-405	3393.	4072.	ENB-444	4318.	5150.	ENB-445	5083.	6214.
100	CLB-365	2507.	2860.	EMB-404	3092.	3539.	ENB-405	3635.	4314.	ENB-444	4641.	5473.	EPB-445	5471.	6602.
84	EMB-365	2638.	2990.	ENB-404	3240.	3687.	ENB-405	3835.	4514.	EPB-444	4914.	5746.	EPB-445	5793.	6924.
68	EMB-365	2771.	3124.	ENB-404	3493.	3940.	EPB-405	4120.	4800.	EPB-444	5268.	6100.	ERB-445	6243.	7373.
56	ENB-365	2996.	3348.	EPB-404	3722.	4169.	EPB-405	4406.	5086.	ERB-444	5652.	6484.	ERB-445	6693.	7824.
45	EPB-365	3248.	3600.	EPB-404	4037.	4484.	ERB-405	4750.	5430.	ERB-444	6136.	6968.	....	....	....

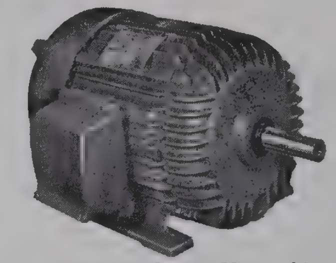
*Unit sizes shown for open Class I Linestart motors only; unit sizes for totally enclosed fan-cooled motors on request.

Westinghouse Life-Line Squirrel Cage Motors

2 and 3-Phase—60 Cycles—208, 220, 440, 550 Volts
Continuous Duty—Constant Speed



Open Drip-Proof Motor, Life-Line A



Totally-Enclosed Fan Cooled Motor, Life-Line A

NEMA Design B: Where starting torque is not excessive for driving fans, blowers, rotary compressors and centrifugal pumps.

NEMA Design C: Where fairly high starting torque is required infrequently with starting current about 550 per cent of full load for driving reciprocating pumps, compressors, crushers, etc.

NEMA Design B

Hp.	Syn. Speed RPM.	*Approx. Full Load Amps. Drip-Proof 220 Volts 3-Phase	Frame Size Life Line A	Frame Size Super-seded Life Line	†Drip-Proof Motors 40°C. Rise Each	Totally Enclosed Motors Non-Ventilated 55°C. Rise Each	Totally Enclosed Motors Fan Cooled 55°C. Rise Each	Explosion-Proof Class I Group D 55°C. Rise Each	†Drip-Proof Vert. Motors With P, Cord Base 40°C. Rise Each
½	900	2.4	182	204	$145.00	$157.00	.....	$205.00	.....
¾	1200	2.8	182	203	130.00	142.00	.....	190.00	$148.00
	900	3.2	184	224	168.00	184.00	.....	236.00	186.00
1	1800	3.2	182	203	‖117.00	‖150.00	.....	198.00	135.00
	1200	3.4	184	204	138.00	176.00	.....	228.00	156.00
	900	4.0	213	225	187.00	203.00	.....	255.00	213.00
1½	3600	4.8	182	203	124.00	173.00	.....	225.00	142.00
	1800	4.6	184	204	‖138.00	‖176.00	.....	228.00	156.00
	1200	5.0	184	224	160.00	194.00	.....	246.00	178.00
	900	6.0	213	254	223.00	245.00	.....	313.00	249.00
2	3600	5.8	184	204	152.00	.....	$204.00	252.00	170.00
	1800	5.8	184	224	‖160.00	.....	‖212.00	264.00	178.00
	1200	6.2	213	225	178.00	234.00	.....	300.00	204.00
	900	7.4	215	254	258.00	324.00	.....	396.00	284.00
3	3600	8.0	184	224	$176.00	.....	$246.00	$298.00	$194.00
	1800	8.4	213	225	‖178.00	.....	‖248.00	300.00	204.00
	1200	8.8	215	254	212.00	.....	296.00	364.00	238.00
	900	11.4	254-U	284	292.00	$410.00	.....	.....	....
5	3600	12.8	213	225	196.00	.....	266.00	318.00	222.00
	1800	12.8	215	254	‖212.00	.....	‖296.00	364.00	238.00
	1200	15.0	254-U	284	278.00	.....	396.00	.....	....
	900	16.8	256-U	324	370.00	.....	532.00	.....	....
7½	3600	17.2	215	254	233.00	.....	317.00	385.00	259.00
	1800	20.0	254-U	284	278.00	.....	396.00	.....	....
	1200	21.0	256-U	324	352.00	.....	514.00	.....	....
10	3600	25.8	254-U	284	306.00	.....	424.00	.....	....
	1800	26.0	256-U	324	352.00	.....	514.00	.....	....
15	3600	38.0	256-U	324	405.00	.....	567.00	.....	....

NEMA Design C

Hp.	Approx. Full Load RPM. (Open 40°C. Motor)	Horizontal — Open Dripproof 40°C. Rise — Design B Linestart Class I — Frame Size	Design B — Bearings — Sleeve Each	Design B — Bearings — Ball Each	Design C Linestart Class II — Frame Size	Design C — Bearings — Sleeve Each	Design C — Bearings — Ball Each	Splash-Proof 50°C. Rise Design B Linestart Class I — Frame Size	Splash-Proof — Each	Totally Enclosed Fan-Cooled 55°C. Rise Design A & B — Frame Size	Fan Cooled Ball Brg. Each	Exp. Proof Ball Brg. Each	‡Vertical Solid Shaft Drip-Proof Normal Thrust Protection Design B Linestart Class I — Frame Size	Vertical — Each	Approx. Full Load Amps. NEMA Design B 3-Phase 220 Volts Open
7½	875	326	....	$443.00	326	....	$465.00	326	$475.00	326	$605.00	$697.00	326	$507.00	23.8
10	1165	326	....	422.00	326	....	443.00	326	454.00	326	584.00	676.00	326	486.00	27.6
	875	364	$556.00	556.00	364	$598.00	598.00	364	608.00	364	790.00	926.00	364	670.00	29.0
15	1755	326	......	422.00	326	......	443.00	326	454.00	326	584.00	676.00	326	486.00	39.3
	1170	364	556.00	556.00	364	598.00	598.00	364	608.00	364	790.00	926.00	364	670.00	39.2
	880	365	682.00	682.00	365	733.00	733.00	365	734.00	365	966.00	1102.00	365	796.00	42.0
20	3495	326	......	485.00	...	......	......	326	517.00	326	647.00	739.00	326	549.00	51.2
	1770	364	556.00	556.00	364	598.00	598.00	364	608.00	364	790.00	926.00	364	670.00	49.0
	1175	365	682.00	682.00	365	733.00	733.00	365	734.00	365	966.00	1102.00	365	796.00	51.2
	880	404	890.00	890.00	404	958.00	958.00	404	979.00	404	1243.00	1453.00	404	1061.00	54.8
25	3535	364-S	667.00	667.00	...	......	......	364-S	719.00	365-S§	1018.00	1154.00	364	781.00	62.0
	1765	364	653.00	653.00	364	702.00	702.00	364	705.00	365	937.00	1073.00	364	767.00	60.4
	1175	404	890.00	890.00	404	958.00	958.00	404	979.00	404	1243.00	1453.00	404	1061.00	64.4
	880	405	1021.00	1021.00	405	1097.00	1097.00	405	1109.00	405	1457.00	1667.00	405	1191.00	66.2
30	3540	364-S	743.00	743.00	...	....	....	364-S	795.00	404-S§	1211.00	1421.00	364	857.00	73.0
	1765	365	750.00	750.00	365	806.00	806.00	365	802.00	404	1140.00	1350.00	365	864.00	72.8
	1175	405	1021.00	1021.00	405	1097.00	1097.00	405	1109.00	405	1457.00	1667.00	405	1191.00	76.6
	880	444	1275.00	1275.00	444	1466.00	1466.00	444	1403.00	444	1821.00	2108.00	444	1525.00	81.0
40	3550	365-S	818.00	818.00	...	....	....	365-S	870.00	405-S§	1382.00	1592.00	...	....	98.0
	1770	404	979.00	979.00	404	1052.00	1052.00	404	1068.00	405	1415.00	1625.00	404	1149.00	100.0
	1175	444	1275.00	1275.00	444	1466.00	1466.00	444	1403.00	444	1821.00	2108.00	444	1525.00	99.4
	885	445	1529.00	1529.00	445	1758.00	1758.00	445	1657.00	445	2195.00	2482.00	445	1779.00	106.0

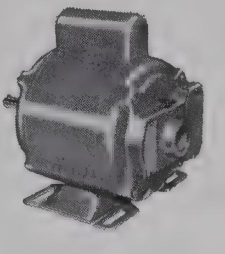
*Full load amperes 440 volts are ½ these values; full load amperes 550 volts are approximately 2/5 of these values; full load amperes for 2-phase motors are approximately 90 per cent of 3-phase values. †60-cycle drip-proof motors will operate on 50 cycles at 50°C. rise and ⅚ of 60-cycle speed. Totally enclosed or explosion proof motors are not suitable for 50-cycle operation. ‡Available with NEMA types C, D and P bases for frames 203 to 505 inclusive and with type P base only for frames 580 and 582.

§Specify direction of rotation. ‖Satisfactory for coupled service. For V-belt drive frame 680-C will be furnished.

When ordering, specify: motor, mounting, hp., frequency, speed, voltage, frame size, enclosure, NEMA design and slide rails if required.

Westinghouse Capacitor-Start Fractional Horsepower Motors

60 Cycles, Single Phase, A.C.



Type FJ
Frame 66

Designed to provide easy installation, smooth operating characteristics and low maintenance. Built to NEMA electrical standards, and is adaptable to a wide variety of applications in the appliance, workshop and small tool fields.

Standard sleeve bearing motors are suitable for all horizontal applications and may be used in a vertical position where the total operating time does not exceed 250 hours a year. Maximum end thrust, 20 pounds.

Ball bearing motor. Open, drip-proof, motors are suitable for indoor applications in fairly dry and clean atmospheres. Thermoguard for protecting motors against excessive overload. The automatic-reset Thermoguard restarts the motor automatically as soon as it cools to safe operating temperature. The manual reset-Thermoguard, after tripping will not reset until the button is pressed.

Type FJ: For compressors, stokers, pumps, machine tools, hoists, large fans and blowers, etc. Has high starting torque, low starting current. Open 40°C. rise motor will carry a small overload continuously or a large overload intermittently. Operates successfully at rated load with a variation in the voltage up to 10 per cent above or below the rated voltage. Automatic Thermoguard.

Type FZ: For farm and home workshop tools, attic fans, evaporative coolers, etc. Design is the same as Type FJ. Open, 50°C. rating and a service factor of 1.0 and is not suitable for applications where the load will continuously exceed the nameplate rating. Manual Thermoguard.

When ordering, specify horsepower, speed, voltage, frequency, frame size, bearings, mounting, enclosure and type of motor. Also specify Thermoguard if required.

Type FJ

Hp.	Volts	No.	Each	Approx. Speed Full Load RPM.	Frame Size	Mounting	Bearings
1/4	115	**1635 031**	**$41.45**	1725	56	rigid	sleeve
1/4	115	**1178 772**	**45.20**	1725	56	resilient	sleeve
1/3	115/230	**1178 774**	**55.10**	1725	B56	rigid	sleeve
1/3	115/230	**1178 775**	**59.70**	1725	B56	resilient	sleeve
1/2	115/230	**1179 565**	**68.75**	1725	D56	rigid	sleeve
1/2	115/230	**1180 500**	**76.25**	1725	66	rigid	sleeve
1/2	115/230	***1179 651**	**73.35**	1725	D56	resilient	sleeve
3/4	115/230	***1179 603**	**92.70**	1725	H56	rigid	sleeve
3/4	115/230	**1180 501**	**97.65**	1725	66	rigid	sleeve
3/4	115/230	***1179 656**	**97.30**	1725	H56	resilient	sleeve

Type FZ

1/3	115	***1179 500**	**$41.45**	1725	56	rigid	sleeve
1/2	115	***1179 489**	**56.30**	1725	56	rigid	sleeve
1/2	115	**†1635 037**	**42.45**	1725	56Z	rigid	ball
3/4	115/230	***1179 458**	**81.10**	1725	D56	rigid	sleeve
1	115/230	**†1179 499**	**53.65**	3450	D56	rigid	sleeve

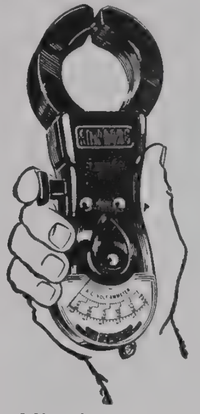
Dimensions

Frame No.	Shaft Diam. In.	Flat or Keyway, In.			Wt. Lb.
		Width	Depth	Length	
56Z	1/2	Flat	3/64	1 1/8	23
56	5/8	3/16	3/32	1 3/8	23
B56	5/8	3/16	3/32	1 3/8	25
D56	5/8	3/16	3/32	1 3/8	32
H56	5/8	3/16	3/32	1 3/8	37
66	3/4	3/16	3/32	1 7/8	51

*Equipped with vertical sleeve bearing construction. May be operated in vertical or horizontal position.

†Double shaft extension.

Amprobe Snap-On Ammeters



For a safe and accurate current reading on either insulated or uninsulated conductors. Just snap trigger-operated jaws around conductor, and take reading on 6 ammeter and 3 voltmeter ranges. No need to shut down machinery to make meter connections. Jaws completely insulated. Eliminates danger of shorts while working in crowded switch boxes. Dovetail transformer joints reduce to a minimum the factor of error due to dust particles in air gap. No-rim window floods scale with unobstructed light from sides. Easy to read from any angle. Large D'Arsonval jeweled movement with Alnico 5 magnet. Precision-balanced, dust proofed.

Thickness, 1 1/4 inches. Width, 2 5/8 inches. Shaped and balanced for one hand operation. Range switch can be worked with one finger of same hand holding instrument. Can fit in pocket, brief case, or on belt. When voltage test lead plugs are removed from meter, snap-out sleeve automatically insulates plugs. Protects against shorts and shocks.

Frequency: 50–70 cycles. Accuracy: within ±3 per cent of full scale. Voltage breakdown test 3000 volts A.C. Scale length, 2.363 inches.

Furnished with top grain cowhide leather case, with belt loop and automatic voltage test leads.

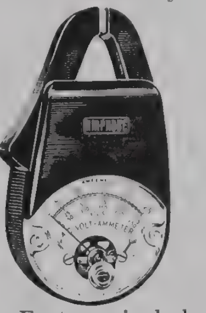
No. 300. Tapered probe jaws. Handles conductors up to 1-inch diameter, or bars up to 1/2x1 1/2 inches. Length, 8 inches. Weight, 13 ounces.

No. 600 and 1200. Doughnut-type transformer. Conductor capacity, 2 inches. Length, 8 1/2 inches. Weight, 15 ounces.

No.	Each	Amperes	Volts
300	**$49.50**	0-6/15/30/60/150/300 A.C.	0-150/300/600 A.C.
600	**59.50**	0-15/30/60/150/300/600 A.C.	150/300/600A.C.
1200	**67.50**	0-15/60/150/300/600/1200 A.C.	150/300/600A.C.

Amprobe Junior Snap-Around Volt-Ammeters

A.C.—60 Cycles



A pocket size voltage and amperage tester. Measures current instantly without shut-downs or ammeter connections. To measure current, trigger-operated jaws are snapped around one single insulated or insulated conductor for a reading.

To measure voltage, safety test leads are plugged into back of the instrument and clipped to the load.

Covers one current range and two voltage ranges. Calibrated scale, 1.8-inch length.

Conductor capacity, 1/2 inch.

Frequency, 60 cycles.

Accuracy, within plus or minus 3 per cent of full scale.

Features include 3-inch D-Arsonval high torque movement with Alnico 5 magnet. Probe jaws are completely insulated and tapered for hard-to-get-at wires in crowded switch boxes. Dovetail transformer joints. Shaped and balanced for one-hand trigger operation. Case is completely insulated, 3000-volt breakdown test. Safety type test leads; no exposed metal contact when voltage leads are removed from meter, protecting against shorts and shocks.

Width, 2 1/2 inches; length, 4 3/4 inches; 1 3/8 inches thick.

Furnished with voltage test leads. Weight 11 ounces.

For Electricians, Contractors and Service Men

For working with 110-volt and 220-volt lines.

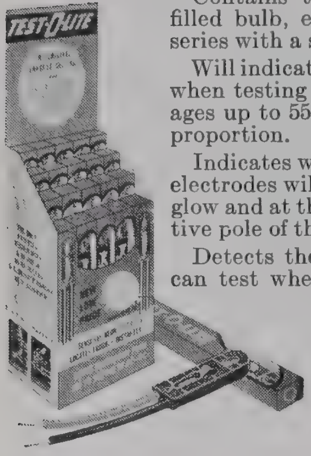
No. **10**, 0– 10 Amp. A.C.; 0–125/250 Volts A.C. . each	**$19.85**
No. **25**, 0– 25 Amp. A.C.; 0–125/250 Volts A.C. . each	**19.85**
No. **50**, 0– 50 Amp. A.C.; 0–125/250 Volts A.C. . each	**19.85**
No. **100**, 0–100 Amp. A.C.; 0–125/250 Volts A.C. . each	**19.85**

For Plant Maintenance Men and Electricians, Industrial Contractors

For working with 440 and 600 volts.

No. **525**, 0– 25 Amp. A.C.; 0–150/600 Volts A.C. . each	**$19.85**
No. **550**, 0– 50 Amp. A.C.; 0–150/600 Volts A.C. . each	**19.85**
No. **500**, 0–100 Amp. A.C.; 0–150/600 Volts A.C. . each	**19.85**
Genuine Leather Case........................each	**2.85**

Test-O-Lites



Contains two electrodes in a neon gas filled bulb, each of which is connected in series with a suitable protecting resistor.

Will indicate voltage—a dim glow is shown when testing 110 volts, and on higher voltages up to 550 volts the glow is brighter in proportion.

Indicates whether a.c. or d.c. If a.c. both electrodes will glow and if d.c. only one will glow and at the same time indicate the negative pole of the circuit.

Detects the live and ground wires. One can test whether a conductor has tension against ground or not by touching one of the leads with the hand.

Tests resistance leaks. Can be used as a pilot light if connected permanently to any circuit.

Furnished in a bakelite casing.

Packed 20 to a display carton.

Each.. **$1.25**

Ideal Voltage Testers

Indicates at a glance whether line is hot, a.c. or d.c.; shows nominal voltage from 110 to 550 volts a.c. or 110 to 600 volts d.c.; frequency, 25 or 60 cycles, d.c. polarity; circuit continuity; blown fuses; grounds.

Solenoid calibrated indicator and neon test lamp in parallel; no danger of failure to detect voltage. Solenoid indicator on easy-to-read calibrated scale; numbers in color blocks to correspond with fuse label color code.

Seamless plastic case. Leads are black; one red and one black molded rubber prod handles; length handles, 4⅜ inches; length of tip, 1 inch.

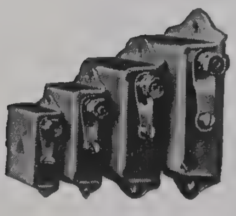
Prod storage shields sharp tips. Overall length, 5¾ in.

Ship. wt., 13 oz.

No. **61-004**, with Carrying Case................each **$12.75**
No. **61-005**, without Carrying Case............each **11.75**

No. 15 Edwards Lungen Buzzers

Schedule S



Designed for use in offices, residences, hospitals, etc., where a device for harder service than the ordinary iron box type is desired. Covers fit tightly making them bug and dust-proof.

Phosphor bronze springs and double adjustment contacts. Available in four sizes varying in tone and volume to meet all conditions.

Rustproof, polished chrome finish. Standard pkg., 3.

When ordering specify the voltage desired.

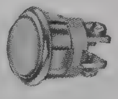
Size No...............	0	1	2	3
Std. 8–10 Volts A.C.; 6–8 V. D.C.......each	$3.30	$3.10	$3.30	$3.50
24 Volts, 60 Cycles or D.C............each	3.90	3.60	3.90	4.00
Other Voltages to 48 Volts...........each	6.30	6.00	6.30	6.70
Size.............inches	1½x1⅝	2⅛x1⅞	2⅝x2⅛	3x2½

Edwards Flush Push-Buttons

Schedule S

For Low Voltage

Flat Pearl Center Type



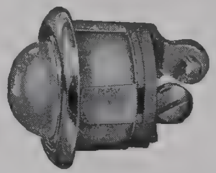
No. 620

No. 620. For soft push action. Strong plastic body holds heavy, rugged terminals. Large flat push area. Spring clips hold push in ⅝-inch hole. Fully insulated. Standard finish nickel; brushed brass available at no extra cost. Self-cleaning contacts.

No. 59. Flat center push. For use in ¾-Inch hole. Rim is ⅛-inch wide and 1/16-inch from back of rim to end of terminals. Has spring clips for mounting. Fully insulated.

No.	Each	Description	Std. Pkg.	Wt. Lb. Per Std. Pkg.
620	$.42	Pearl Center Push............	12	½
59	1.00	Pearl Center Push............	6	¼

No. 625 Raised Center Types



This push has a raised white glass center but is otherwise exactly the same as No. 59.

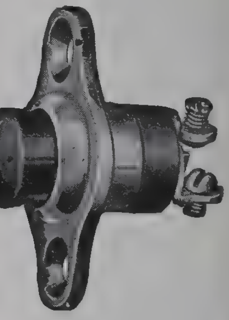
Insulated, fits ⅝-inch hole.

Standard package, 6.

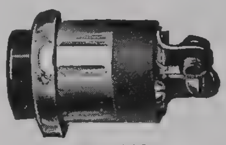
No. 625...................each **$.80**

Protruding Center Type

No. 621



No. 622



No. 116

With solid turned brass shell. Phosphor-bronze springs, self-cleaning contacts.

No. 621 has spring clips to hold push firmly in ⅝-inch mounting hole. No. 622 has escutcheon for wood screw mounting in 9/16-in. hole. No. 116 is for forced fit in ½-in. hole.

Standard finish, nickel; brush brass when specified.

No.	Each	Description	Std. Pkg.
621	$.95	Insulated, with Spring Clips, Fits ⅝-Inch Hole.	6
622	1.30	Insulated, with Escutcheon, Fits 9/16-Inch Hole.	6
623	1.20	With Lock Nut, ⅝-Inch Hole..................	6
116	2.25	Insulated, Forced Fit, ½-Inch Hole..........	1

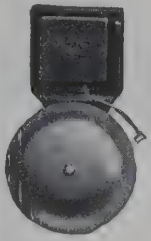
Electrical

EQUIPMENT

We are in position to supply a complete line of electrical equipment and will be glad to have your inquiries.

No. 55 Edwards Bells

Schedule S



Designed for burglar alarm and other work of that character.

Has a single magnet bell.

Adjustable, non-weatherproof.

Light grey finish.

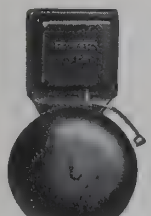
Standard package, 1.

When ordering, specify voltage.

Size .... inches	4	6
No. 55, Std. 8—10 V., A.C.; 6—8 V., D.C.; Specify Voltage .... each	$4.50	$5.50
No. 55, Other Voltage to 48 V.; Specify .... each	6.75	8.00
Approximate Weight .... pounds	1¼	2½

No. 17 Edwards Economy Bells

Schedule S



A covered two-magnet bell for low cost burglar alarm and similar work.

Adjustable.

Bakelite insulation.

Gray finish.

Standard package, 1.

When ordering, specify voltage.

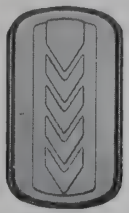
Size .... inches	4	6
No. 17, Std. 8—10 V., A.C.; 6—8 V., D.C. .... each	$9.50	$11.60
No. 17, Other Voltage to 48 V. ...... each	13.75	16.50
Approximate Weight .... pounds	1½	2¾

Edwards Doorbells and Buzzers

Standard 8-10 Volts 60 Cycle A.C., 6-8 Volts D.C.

Schedule S

Bell movement has straight hammer rod and solid hammer ball, giving more power and smoother action on battery or transformer.



No. 730

Arranged for surface or concealed wiring.

The Dixie doorbell and the Buzabel (combined bell and buzzer) are enclosed. Cover snaps on with a slight pressure, with no screws necessary. These models are only 1 inch deep to allow for mounting in out-of-the-way places where other models will not fit.

The Nubel has enclosed binding posts and the snap-on type cover and exposed gong.

Large magnet, correctly designed phosphor-bronze springs, silver contacts and fine workmanship.

Dixie Bell

Standard 6-8 Volts 60 Cycles A.C., 3-6 Volts D.C.

No.	Each	Description	Std. Pkg.	Approx. Wt. Lb. Std. Pkg.
720	$1.10	Aluminized, Covered, Non-Adjustable	12	6
		Buzabel		
730	1.70	Aluminized, Covered, Non-Adjustable Combination Bell and Buzzer	12	6
		Nubel		
740	1.00	Aluminized, Enclosed Binding Posts, Non-Adjustable, 2½-Inch Gong	12	4¼
		Dixie Buzzer		
725	.96	Aluminized, Covered, Non-Adjustable	12	2¼
		Exposed Gong Type Bell		
744	1.70	4-Inch Type, Non-Adjustable	3	2

No. 340 Edwards Vibrating Adaptabels

For Alternating Current Operation

24 and 115 Volts, 60 Cycles

Schedule S

A new standard, extra loud, heavy duty bell for interior use. Extremely loud despite small size.

Constructed of die cast Z-metal. Self-compensating mechanism for normal wear for life of bell. Low current consumption. Simple, quick, installation.

Individually packed.

Size .... inches	4	6	10
24 Volts, 60 Cycles .... each	$20.00	$28.50	$37.50
115 Volts, 60 Cycles .... each	25.00	33.50	40.00
Other Voltages or Cycles to 250 Volts, 60 Cycles (Specify) .... each	30.00	38.50	50.00
Approximate Weight .... pounds	3¾	6	9½

Additions to List Price

Size Adaptabel ...... inches	4	6	10
For Full Cast Grid G .... add	$12.50	$12.50	$15.00
For Slotted Gong .... add	4.00	4.00	4.00

Cast Back Box and Gaskets

For weather-proof installation of adaptabel. Individually packed.

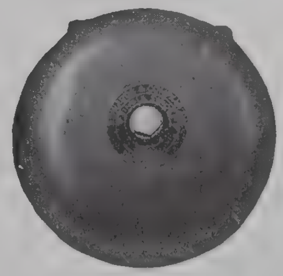
No.	348	349	349
Each	$6.00	$6.00	$6.00
For Adaptabel Size .... inches	4	6	10
Approximate Weight .... pounds	1½	2	2

Edwards Single Stroke Bells

For Approved Coded Fire Alarm Systems

For A.C. or D.C. Operation

Schedule C



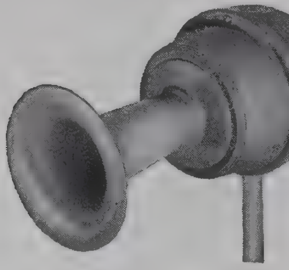
Solenoid construction approved by State, Insurance and Underwriters' Boards for closed circuit fire alarm systems. Mounts on wall, 4-inch square box, standard switch box, any outlet box with single gang switch cover or on any single gang condulet or wiremold type fitting.

Size .... inches	4	6	10
No. 23, for D.C. .... each	$25.00	$33.50	$40.00
No. 24, for A.C. .... each	25.00	33.50	40.00
Approximate Weight ...... pounds	2	4¾	9

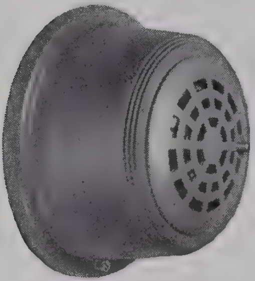
Edwards Adaptahorns

Schedule S

Listed by Underwriters' Laboratories



No. 372 Projector Type



No. 374 Grille Type

Designed to give loud results from less current. Ideal for schools and factories.

Shock-proof case is die-cast Zamak No. 3. Mechanism is sealed to lock out dirt, bugs and dust.

Plate can be mounted to wall or any standard outlet box with single gang cover, or single gang condulet or wiremold type fitting. Connect wires on large binding posts, slip the Adaptahorn on the hanger and push into place.

Standard finish, grey.

No. 372. A.C. projector type. Overall size: diameter, 7 inches; length, $10\frac{1}{8}$ inches. Approximate weight, $6\frac{3}{4}$ pounds.

No. **372**, 24 Volts, A.C., 60 Cycles............each **$21.00**
No. **372**, 115 Volts, A.C., 60 Cycles...........each **21.00**
No. **372**, Volts to 250, A.C., 25 Cycles.........each **25.00**

No. 374. A.C. grille type. Overall size: diameter, 7 inches; depth, 4 inches. Approximate weight, $5\frac{3}{4}$ pounds.

No. **374**, 24 Volts, A.C., 60 Cycles............each **$18.50**
No. **374**, 115 Volts, A.C., 60 Cycles...........each **18.50**
No. **374**, Volts to 250, A.C., 25 Cycles.........each **23.00**

Loudness Measurements at 115 Volts, 60 Cycles

No.	372	374
Decibels at 10 Feet	91	98
A.S.A. Loudness Units	40,000	80,000

No. 349 Cast Back Boxes and Gaskets

For Underwriters' Listed weatherproof installation.

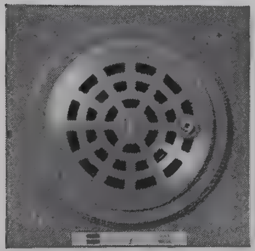
Drilled and tapped on top to take $\frac{1}{2}$-inch conduit. Bosses are also provided in the back and at the bottom which can be drilled on the job for unusual mounting requirements.

Weight, 2 pounds.

No. **349**.......................................each **$6.00**

No. 370 Edwards Flush Horns

Schedule S



Has the same characteristics and mechanism as the Adaptahorns.

Size, $6\frac{1}{2}$ by $6\frac{1}{2}$ inches. Wall cut size, $5\frac{5}{8}$ by $5\frac{5}{8}$ by 3 inches deep.

Loudness Measurements at 115 Volts, 60 Cycles

Decibels at 10 Feet....	94
A.S.A. Loudness Units.	52,000

Furnished complete with special wall box.

Weight, $3\frac{3}{4}$ pounds.

No. **370**, 25 or 115 Volts, A.C. (Specify)........each **$30.00**
No. **370**, Volts to 250, A.C., 25 Cycles..........each **35.00**

Horns for D.C. or series operation on fire alarm systems available; prices on application.

Federal Vertical Electric Sirens

Large vertical siren is a signal for fire, air raid, and other alarm purposes in industry and municipality. The vertical design distributes sound waves radially over distances averaging $\frac{1}{2}$ to 2 miles, depending on local conditions.

Specially designed ball bearing motors assure quick pick-up and high output.

Furnished with weatherproof housing.

The two horsepower universal motor will also operate on d.c. All others are for 60 cycle a.c. operation with choice of voltage.

No. STL-10 differs radically in design and appearance, with sound output proportionately higher than its horsepower indicates.

No.	Hp.	Phase	Volts	Ship. Wt. Lb.	Each
2	2	1	110 or 220	70	**$250.00**
5	5	3	220/440	300	**450.00**
5	5	1	220	325	**550.00**
7	$7\frac{1}{2}$	3	220/440	440	**500.00**
7	$7\frac{1}{2}$	1	220	460	**600.00**
STL-10	10	3	220/440	450	**650.00**
STL-10	10	1	220	470	**750.00**

Federal Vehicle Sirens

A complete line of powerful sirens, with or without flashing lights for fire apparatus, ambulances, police cars, and other emergency vehicles, price from $23.00 to $155.00.

Write for complete bulletins.

No. 315 Edwards Industrial Sirens

Schedule S

Listed by Underwriters' laboratories for general signal or fire alarm use. Not recommended for coding.

Its wail can be recognized easily through other sounds.

Weatherproof housing of spun sheet metal. Adjustable bracket permits directing signal. Red lacquer housing.

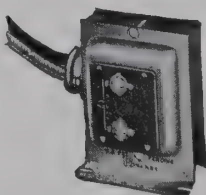
Packed 1 in a box. Approximate shipping weight, $15\frac{1}{2}$ lb.

115 V., 60 cycles, a.c. or d.c.
Each.................. **$85.00**
Other Voltages to 230
Volts, 60 cycle, a.c. or d.c.
Each.................. **$110.00**

Specify Voltage

Edwards Easi-Mount Transformers

Listed by Underwriters' Laboratories



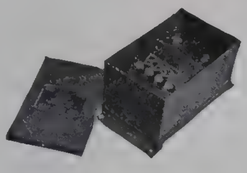
Mounts on any outlet box or cabinet with $\frac{1}{2}$-inch knockouts or alone on any surface without box. Expandable nipple inserted into $\frac{1}{2}$-inch knockout. Non-removable setscrew fastens from outside of outlet box or cabinet. Height, $2\frac{5}{8}$ inches. Width, $2\frac{5}{8}$ inches. Depth, $1\frac{7}{8}$ inches. Light grey finish. For 230-volt and 25-cycle transformers, information on request.

			Primary		Secondary		Approx. Wt. Lbs.
No.	Each	Transformer	Volts	Cycles	Volts	Cycles	Std. Pkg.
890	**$2.02**	Doorbell.......	115	50–60	10	5	6
892	**3.20**	Chime..........	115	50–60	16	10	3
894	**2.54**	Chime..........	115	50–60	16	10	3
896	**2.78**	Tri-Volt, 5-Watt	115	50–60	6–12–18	5	6

Edwards Signaling Transformers

Primary 115 V., 60 Cycles

Secondary 4-8-12-16-20-24 Volts



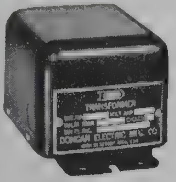
Completely enclosed. Binding posts eliminate splicing, soldering, and taping. No. 88-50 has Underwriters' approval. Forms own barrier between high and low voltage.

	Schedule S	*Schedule C*	
No.	**88–50**	**7194**	**7195**
*115V. 60 Cycles.......... each	**$10.70**	**72.60**	**91.60**
Watts	50	750	1000
Height .... inches	4¼	6½	6½
Width .... inches	3⅝	7½	9¾
Length .... inches	7⅞	14½	14½
Approx. Weight .... pounds	5⅛	42	58¼

*Ratings apply to the 24-volt tap; 115-volt primaries may be used on up to 130 volts.

Dongan Double Wound Step-Down Transformers

Dry Type—Encased



No. 35-10

No. 35-100

Used on railroads, in factories, mills, mines, schools, etc., for general lighting, supplementary machine lighting, signaling, or the operation or insulation of 115 or 230-volt apparatus for power circuits.

Built in baked enamel, drawn steel cases, compound filled—moisture-proof.

In these transformers both primary and secondary are in separate compartments. The contractor can meet National Electrical Code Rulings without additional wiring boxes.

For single secondaries of 6, 12, 24, or 32 volts add 10 per cent. Add for circuit breaker or fuse block, $5.50.

Primary 480/240 Volts—Secondary 240/120 Volts
60 Cycles

No.	Each	Cap. Kva.	Approx. Size, In. Height	Width	Depth	Approx. Wt., Lb.
35-05	**$12.50**	.050	4	4½	6½	5½
35-10	**16.00**	.100	4	4½	6½	7½
35-15	**19.00**	.150	5¼	4½	7½	10¼
35-25	**22.00**	.250	5¼	4½	7½	13
35-50	**31.00**	.500	11 5/16	6⅜	5 5/16	23
35-75	**39.00**	.750	11 5/16	6⅜	5 5/16	26
35-100	**50.00**	1.000	12⅜	5¾	4⅝	29
35-150	**61.00**	1.500	12⅞	7⅛	5⅛	41
35-200	**74.00**	2.000	9⅝	10 11/16	6⅝	54
35-300	**100.00**	3.000	10⅝	10⅛	11¼	69
80-500	**145.00**	5.000	11⅝	10⅛	11¼	89
80-750	**200.00**	7.500	16½	15¼	12	137
80-1000	**250.00**	10.000	19	15¾	11½	143
80-1500	**348.00**	15.000	26	18	12	215
80-2500	**536.00**	25.000	30	21	20	335
80-3750	**685.00**	37.500	32	23	21	440
80-5000	**825.00**	50.000	32	23	22	550

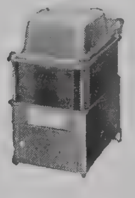
First four items can be furnished with circuit breaker and single secondary voltage of 120. Add suffix CB to No.

For 600-volt primary, add suffix S to No.

Type GP Westinghouse Dry-Type Specialty Transformers

For Indoor and Outdoor Mounting

600 Volts High Voltage and Below
.250 to 3.0 Kva.—Single Phase—60 Cycles



For installation in practically any location not subject to submersion or high concentration of injurious fumes.

Used for taking lighting loads from power circuits, stepping down voltages for appliances, ventilating fans, soldering pots, portable tools, pumps and compressors, machine tools and many other circuit applications.

Use of Hipersil cores reduces size and weight, allows installation in minimum space.

Naturally air-cooled. No liquid or toxic gas hazards.

Line losses reduced to a minimum because installations can be made at load centers, resulting in shorter lengths of secondary copper.

When ordering, specify No., kva., phase, cycle, type and voltage.

Two-Winding Transformers

50°C. Rise Kva.	No.	Each	Voltage Rating Primary	Secondary	Approximate Dimensions Ht.	Width	Depth	Approx. Wt. Lb.
.250	2E3	**$24.00**	120/240	32	9½	3	5⅞	15.0
.500	3E74	**34.00**	120/240	32	10 11/16	6¼	7⅛	19.5
.750	3E75	**43.00**	120/240	32	11 7/16	7½	8	27.5
1.0	3E76	**52.00**	120/240	32	12 9/16	8⅝	8¼	36.0
1.5	3E77	**64.00**	120/240	32	13 9/16	9⅝	9⅝	52.0
2.0	3E78	**77.00**	120/240	32	15¾	10¼	10	66.5
.250	2E9	**22.00**	240	120	9½	3	5⅞	15.0
.500	3E54	**31.00**	240	120	10 11/16	6¼	7⅛	19.5
.750	3E55	**39.00**	240	120	11 7/16	7½	8	27.5
1.0	3E56	**50.00**	120/240	120/240	12 9/16	8⅝	8¼	36.0
1.5	3E57	**61.00**	120/240	120/240	13 9/16	9⅝	9⅝	52.0
2.0	3E58	**74.00**	120/240	120/240	15¾	10¼	10	66.5
.250	2E15	**22.00**	480	120	9½	3	5⅞	15.0
.500	3E59	**31.00**	480	120	10 11/16	6¼	7⅛	19.5
.750	3E60	**39.00**	480	120	11 7/16	7½	8	27.5
.250	2E44	**23.00**	240/480	120/240	9½	3	5⅞	15.0
.500	3E64	**33.00**	240/480	120/240	10 11/16	6¼	7⅛	19.5
.750	3E65	**41.00**	240/480	120/240	11 7/16	7½	8	27.5
1.0	3E66	**50.00**	240/480	120/240	12 9/16	8⅝	8¼	36.0
1.5	3E67	**61.00**	240/480	120/240	13 9/16	9⅝	9⅝	52.0
2.0	3E68	**74.00**	240/480	120/240	14 9/16	10¼	10	66.5
.250	2E21	**24.00**	600	120	9½	3	5⅞	15.0
.500	3E69	**33.00**	600	120	10 11/16	6¼	7⅛	19.5
.750	3E70	**42.00**	600	120	11 7/16	7½	8	27.5
1.0	3E71	**54.00**	*600	120/240	12 9/16	8⅝	8¼	36.0
1.5	3E72	**67.00**	*600	120/240	13 9/16	9⅝	9⅝	52.0
2.0	3E73	**81.00**	*600	120/240	14 9/16	10¼	10	66.5

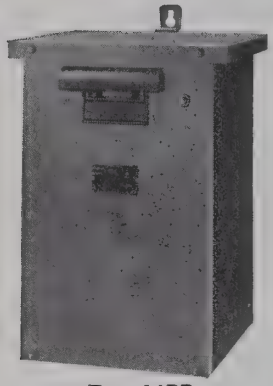
Autotransformers

50°C. Rise Kva.	No.	Each	Voltage Rating Primary	Secondary	Approximate Dimensions Ht.	Width	Depth	Approx. Wt. Lb.
.500	**2L1**	**$22.00**	240	120	9½	3	5⅞	15.0
.750	**2L2**	**27.00**	240	120	10¼	3	5⅞	20.0
1.0	**3L8**	**31.00**	240	120	10 11/16	6¼	7⅛	19.5
1.5	**3L9**	**39.00**	240	120	11 7/16	7½	8	27.5
2.0	**3L10**	**47.00**	240	120	12 9/16	8⅝	8¼	36.0
3.0	**3L11**	**58.00**	240	120	13 9/16	9⅝	9⅝	52.0

*Two 5 per cent taps below.

Westinghouse Dry Type Distribution Transformers

600 Volts and Below
3 to 167 Kva. Single Phase—9 to 225 Kva. 3 Phase—60 Cycles


Type AJRB

For installation in practically any location not subject to submersion or high concentration of injurious fumes.

Used for taking lighting loads from power circuits, stepping down voltages for appliances, ventilating fans, soldering pots, portable tools, pumps and compressors, machine tools and many other circuit applications.

Use of Hipersil cores reduces size and weight, allows installation in minimum space. Naturally air-cooled. No liquid or toxic gas hazards. Line losses reduced to a minimum because installations can be made at load centers, resulting in shorter lengths of secondary copper.

Type E is designed primarily for use in plants where dirt, lint and non-explosive dust are a problem. Completely enclosed, with 150°C. temperature rise.

Type AJR has 80°C. temperature rise and may be used for indoor or outdoor service.

Type AVR is drip-proof and has 80°C. temperature rise. Standard designs are for indoor service only. Special outdoor designs can be supplied on request.

Types AJRB and AVRB are similar to types AJR and AVR, but have built-in type AB circuit breakers above the core and coil assembly. Built-in breakers also serve as transformer disconnect switch. Have 80°C. temperature rise.

Dimensions, shipping weights and higher voltage ratings available on request.

When ordering, specify No., kva., phase, cycle, type, and voltage.

Single Phase

Type E—Wall, Floor or Platform Mounting—Indoor or Outdoor

150°C. Rise Kva.	240x480 (No Taps) to 120/240-V.		240x480 (One 10% x Two 5% FCBN) to 120/240-V.		240x480 (One 5%x Four 2½% FCBN) to 120/240-.V		480 (Two 5% FCBN) to 120/240-V.		600 (No Taps) to 120/240-V.		600 (Two 5% FCBN) to 120/240-V.		600 (Four 2½% FCBN) to 120/240-V.	
	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
3	*†1629439	$100.00	1629447	$103.00	....	......	*†1629443	$100.00	*†1629451	$104.00	*1629455	$108.00	....	......
5	*†1629440	145.00	1629448	151.00	....	......	*†1629444	145.00	*†1629452	152.00	*1629456	158.00	....	......
7.5	*†1629441	200.00	1629449	208.00	....	......	*†1629445	200.00	*†1629453	210.00	*1629457	217.00	....	......
10	*†1629442	250.00	1629450	260.00	....	......	*†1629446	250.00	*†1629454	262.00	*1629458	271.00	....	......
15	1722203	383.00	....	......	1722207	$411.00	1722211	383.00	1722662	400.00	....	......	1722215	$429.00
25	1722204	590.00	....	......	1722208	635.00	1722212	590.00	1722663	618.00	....	......	1722216	662.00
37.5	‡1722205	753.00	....	......	†1722209	810.00	‡1722213	753.00	‡1722664	789.00	....	......	‡1722217	846.00
50	‡1722206	907.00	....	......	‡1722210	976.00	‡1722214	907.00	‡1722665	950.00	....	......	‡1722218	1019.00

Type AVR—Wall, Floor or Platform Mounting—Indoor Only

80°C. Rise Kva.	240x480 (No Taps) to 120/240-V.		240x480 (Two 5%x Four 2½% FCBN) to 120/240-V.		480 (Two 5% FCBN) to 120/240-V.		600 (No Taps) to 120/240-V.		600 (Two 5% FCBN) to 120/240-V.		600 (Four 2½% FCBN) to 120/240-V.	
	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each	No.	Each
15	*1356280	$348.00	1453229	$374.00	*1408137	$348.00	*1356282	$364.00	*1742968	$377.00	1483118	$390.00
25	*1356281	536.00	1453799	577.00	*1408138	536.00	*1356283	562.00	*1742969	582.00	1483119	602.00
37.5	*‡1356119	685.00	‡1453800	736.00	*‡1408135	685.00	*‡1356121	717.00	*†1742970	743.00	‡1483120	769.00
50	*‡1356120	825.00	‡1453801	887.00	*‡1408136	825.00	*‡1356122	864.00	*†1742971	895.00	‡1483121	926.00
75	....	......	*‡1576142	1108.00	....	......	....	......	....	......	*‡1576146	1157.00
100	....	......	*‡1576143	1312.00	....	......	....	......	....	......	*‡1576147	1370.00
167	....	......	‡1646603	2338.00	....	......	....	......	....	......	....	......

Type AJRB—Wall Mounting—Indoor Only With Circuit Breaker

80°C. Rise Kva.	240 (No Taps) to 120/240-V.		480 (Two 5% FCBN) to 120/240-V.		600 (Two 5% FCBN) to 120/240-V.	
	No.	Each	No.	Each	No.	Each
3	1484194	$154.00	1484204	$157.00	1484216	$165.00
5	1484195	198.00	1484205	203.00	1484217	214.00
10	1484197	321.00	1484207	309.00	1484219	328.00

Type AVRB—Floor or Wall Mounting—Indoor Only With Circuit Breaker

80°C. Rise Kva.	480 (Four 2½% FCBN) to 120/240-V.		600 (Four 2½% FCBN) to 120/240-V.	
	No.	Each	No.	Each
15	1484208	$442.00	1484220	$447.00
25	1484209	640.00	1484221	680.00
37.5	‡1484210	935.00	‡1484222	987.00
50	‡1484211	1081.00	‡1484223	1144.00
75	‡1484212	1297.00	‡1484224	1375.00
100	‡1484213	1496.00	‡1484225	1588.00

3 Phase

Type AJR—Wall Mounting—Indoor or Outdoor 4 Wire

80°C. Rise Kva.	480 Delta (No Taps) to 208Y/120-V.		480 Delta (Two 5% FCBN) to 208Y/120-V.		600 Delta (No Taps) to 208Y/120-V.	
	No.	Each	No.	Each	No.	Each
9	*1590464	$282.00	*1590466	$293.00	*1590468	$305.00
15	*1435626	411.00	*1435631	427.00	*1435636	444.00
30	*1590465	708.00	*1590467	736.00	*1590469	765.00

Type AVR—Floor or Platform Mounting—Indoor Only 4-Wire

80°C. Rise Kva.	480 Delta (No Taps) to 208Y/120-V.		480 Delta (Four 2½% FCBN) to 208Y/120-V.		600 Delta (No Taps) to 208Y/120-V.		600 Delta (Four 2½% FCBN) to 208Y/120-V.	
	No.	Each	No.	Each	No.	Each	No.	Each
45	1590485	$984.00	*1590488	$1063.00	1590491	$1063.00	*1590495	$1141.00
75	1356615	1518.00	*1366399	1639.00	1317018	1639.00	*1304586	1761.00
112.5	1590486	1938.00	*1590489	2093.00	1590492	2093.00	*1590496	2248.00
150	1356617	2334.00	*1366323	2521.00	1590493	2521.00	*1317020	2706.00
225	1590487	2916.00	*1590490	3149.00	1590494	3149.00	*1590497	3383.00

Type AJRB—Wall Mounting—Indoor Only With Circuit Breaker

80°C. Rise Kva.	240 Delta (No Taps) to 208Y/120-V.		480 Delta (Two 5% FCBN) to 208Y/120-V.		600 Delta (Two 5% FCBN) to 208Y/120-V.	
	No.	Each	No.	Each	No.	Each
9	1643209	$350.00	1643215	$361.00	1643223	$384.00
15	1643210	499.00	1643216	495.00	1643224	528.00
30	1643211	968.00	1643217	824.00	1643225	881.00

*N.E.M.A. standard. †Arranged for wall mounting only.
‡Floor or platform mounting only.

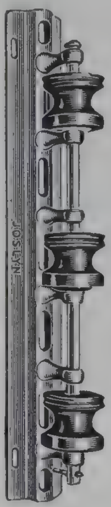
Type AVRB—Floor and Platform Mounting—Indoor Only With Circuit Breaker

80°C. Rise Kva.	240 Delta (Four 2½% FCBN) to 208Y/120-V.		480 Delta (Four 2½% FCBN) to 208Y/120-V.		600 Delta (Four 2½% FCBN) to 208Y/120-V.	
	No.	Each	No.	Each	No.	Each
45	1643212	$1323.00	1643218	$1323.00	1643226	$1402.00
75	1643213	2280.00	1643219	2280.00	1643227	2420.00
112.5	1643214	2734.00	1643220	2734.00	1643228	2898.00
150	....	....	1643221	3162.00	1643229	3348.00
225	....	....	1643222	3790.00	1643230	4024.00

Joslyn Heavy Service Secondary Racks

Hot-Dip Galvanized

Extended Back Type



Designed for the heaviest secondary service loads. The strongest possible construction is insured by the patented method of driving the drop-forged arms through the web of the flared channel back and electrically welding them to the sides of the channel.

The rounded back of heavy pressed steel fits snugly to the pole and provides a broad bearing surface. The backs are made of ⅛-inch open hearth steel and the racks are hot-dip galvanized with the greatest care to prevent rough spots which might damage the insulation on the wires.

A new arm design eliminates water pockets.

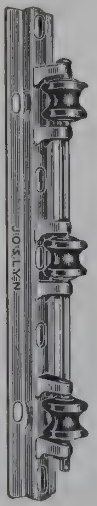
The solid drop-forged arm provides a smooth rounded surface for stringing wires that will not damage insulation. Order No. J101 insulators separately.

No.	No. of Wires	Wire Spacing Inches	Mounting Hole Spacing Inches	Length Overall Inches	Net Weight Pounds per 100
J1067	2	4	12	14	440
J1167	2	6	14	16	540
J1267	2	8	16	18	550
J1367	2	12	20	22	700
J1068	3	4	16	18	540
J1168	3	6	20	22	740
J1268	3	8	24	26	830
J1069	4	4	20	22	700
J1169	4	6	26	28	980
J1170	4	8	32	34	1100

Joslyn Light Service Secondary Racks

Hot-Dip Galvanized

Extended Back Type



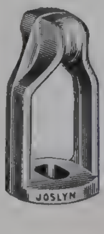
The heavy pressed steel back is made of ⅛-inch thick open hearth steel formed to provide the greatest possible strength. The smooth pressed steel points are electrically arc-welded to the back.

The patented method of driving the point through the web of the channel-shaped back and welding to the base of the flanges, gives these racks strength to withstand the severest condition. Order No. J100 insulator separately.

No.	No. of Wires	Wire Spacing Inches	Mounting Hole Spacing Inches	Length Overall Inches	Net Weight Pounds per 100
J2646	2	6	14	16	320
J2648	2	8	16	18	380
J3646	3	6	20	22	500
J3648	3	8	24	26	560
J4646	4	6	26	28	640
J4648	4	8	32	34	760

Joslyn Drop-Forged Thimbleyelets

Hot-Dip Galvanized

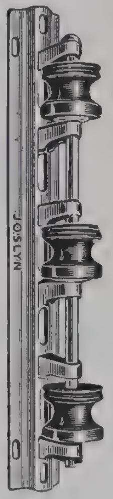


Used under the head or nut of machine bolts. Maximum strand size, ⅝-inch diameter.

No.	J6550-C	J6551
Bolt Size.....inches	⅝	¾
Net Weight per 100.....pounds	136	118

Joslyn Secondary Racks

Hot-Dip Galvanized



Designed to give greater pole bearing surface. All welded construction eliminates any pockets.

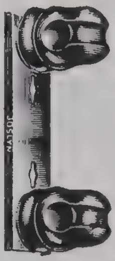
Smooth rounded pressed steel arms will not damage insulation when stringing secondaries.

When ordering, specify if insulators are desired.

No.	No. of Wires	Wire Spacing Inches	Length Overall Inches Extended	Length Overall Inches Non-Extended	End Mounting Hole Spacing Inches	Net Weight Pounds per 100
J767	2	8	18	14¾	16	500
J771	2	12	22	....	20	610
J765	3	4	18	14¾	16	500
J768	3	8	26	22¾	24	740
J772	3	12	34	30¾	32	980
J769	4	8	34	30¾	32	980

Joslyn Service Wireholders

Hot-Dip Galvanized

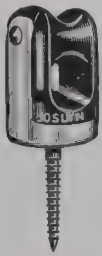


For services where increased load is expected and a third wire will be run later. Insulators have short threaded stud cast in with lead alloy. Cork base cushions each insulator and permits lining up wire hole. A nut is welded to back of rack at each insulator position. Backs are mounted and insulators attached afterwards, eliminating breakage.

Back is made of No. 12-gage steel, 2 inches wide with ½-inch flanges. Special slot in back, 1½-inch long, takes ¼-inch lags or ⅜-inch lag in center. Backs are shipped in bundles; insulators are shipped in cartons.

No.	No. of Insulators	Insulator No.	Diam. Insulator Inches	Height Insulator Inches	Size Insulator Hole Inches	Wire Spacing Inches	Net Wt. Lb. per 100
J2307	3	J2499	1$\frac{31}{32}$	3	½x¾	6	290
J2305	3	J2499	1$\frac{31}{32}$	3	½x¾	4½	274
J2210	2	J2499	1$\frac{31}{32}$	3	½x¾	9	211
J2207	2	J2499	1$\frac{31}{32}$	3	½x¾	6½	191

Joslyn Service Wireholders



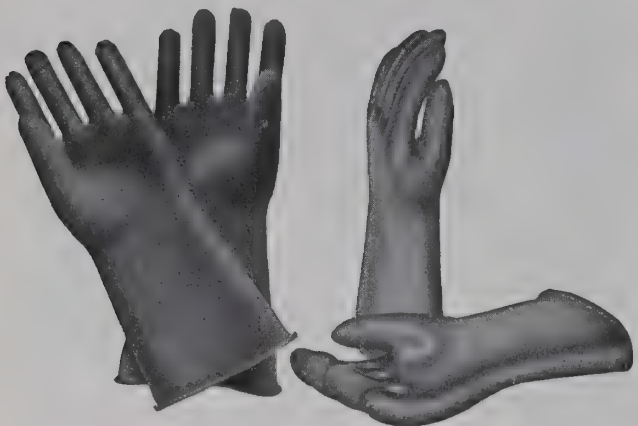
Rugged construction; attractive appearance; easy to install. Has equal strength on dead end or 45° pulls.

All steel parts are hot-dip galvanized. All edges on the porcelain are well rounded and will not chip even though a steel bar is used as a handle to install the wireholder.

No.	J089	J0893	J0894
Screw No.	22	22	22
Size Screw.....inches	2¼	3	*4
Net Weight per 100.....pounds	80	86	88

*Has 2½-inch thread.

Salisbury Steam Cured Linemen's Rubber Gloves



No. 90, Straight Finger Style **No. 100, Curved Finger Style**

Length, 14 inches. Features high insulation, low leakage, strength, flexibility and long life. Seamless, form-fitting and accurate to size; finger lengths and widths adjusted for average conditions. Class B, 10,000-volt type is standard.

Meets A.S.T.M. specifications and thorough inspection.

Replacement will be made of gloves unsatisfactory at time of delivery.

Furnished in sizes 9, 9½, 10, 10½, 11 and 12.

Packed 1 pair to box.

No. **90-B**, 10,000-V. Test, Class B	per doz.	.....
No. **90-15**, 15,000-V. Test	per doz.	.....
No. **90-20**, 20,000-V. Test	per doz.	.....
No. **100-B**, 10,000-V. Test, Class B	per doz.	.....
No. **100-15**, 15,000-V. Test	per doz.	.....
No. **100-20**, 20,000-V. Test	per doz.	.....

Salisbury Linemen's Protector Gloves

Full Gauntlet, 4-Inch Style

Designed to wear over Linemen's Rubber Gloves to protect them from snagging, tearing or abrasive wear. Made expressly for this work and should not be confused with the ordinary work gloves.

Made of specially tanned Grade A buffed horsehide, maroon color, and from selected weights.

Remains soft and pliable under all conditions and will not become slippery when wet. Resists wire puncture to a great degree.

Sewn with outside seams. Gun cut.

For Use with Straight Finger Rubber Gloves

No.	18	18C	20	20C
*Per Dozen	.....	.....	.....	.....
Style Back	Closed	Open	Closed	Open
Covers Rubber Glove Sizes	9, 9½, 10	9, 9½, 10	10½, 11, 12	10½, 11, 12

For Use with Curved Finger Rubber Gloves

No.	118-C	118	120-C	120
*Per Dozen	.....	.....	.....	.....
Style Back	Closed	Open	Closed	Open
Covers Rubber Glove Sizes	9, 9½, 10	9, 9½, 10	10½, 11, 12	10½, 11, 12

*Clute pattern, sewn inside seams, deduct $1.50 per dozen.

J-M Asbestos Gloves and Mittens

Gloves

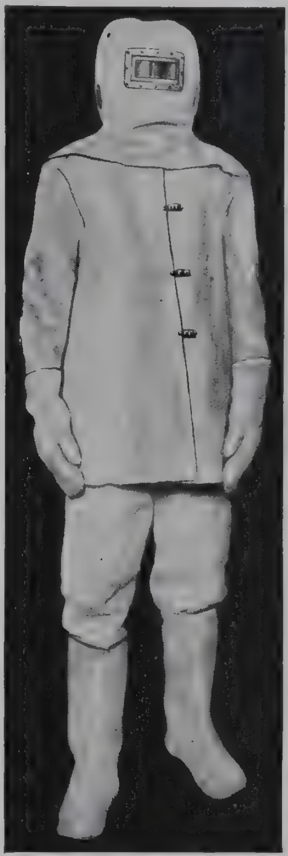
Regular Style Mittens

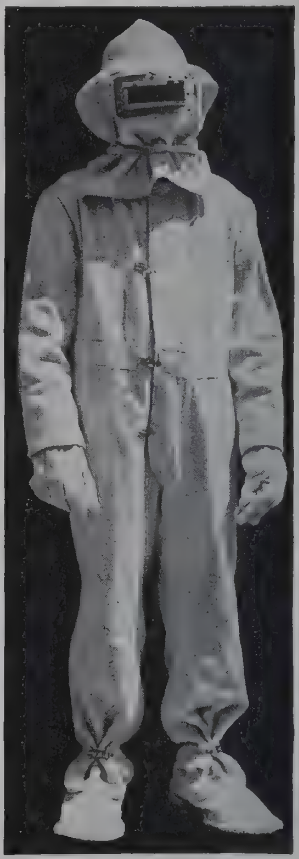
Available in the following styles: gloves, regular style mittens, and one-finger style mittens.

Furnished without linings unless specified to be lined; if specified lined, gloves and one-finger style mittens furnished lined with cotton fleece and regular style mittens lined with canvas.

Length Overall	inches	12	14	16
Gloves	per pair	....	....	....
Regular Style Mittens	per pair	....	....	....
One-Finger Style Mittens	per pair	....	....	....

J-M Asbestos Clothing





As individual requirements vary, asbestos clothing is made to order, to comply with the safety rules or regulations of the particular industry.

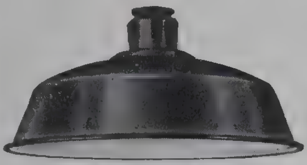
Garments manufactured include asbestos aprons, helmets, Sou'wester type hats, caps, gaiters, leggings with or without foot protecting flap, overshoes and arm protectors. Also made are asbestos coats and overalls, which are lined with duck, and asbestos gloves and mittens.

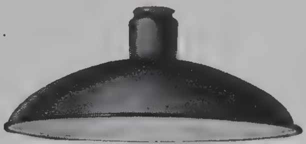
Prices and Complete Information upon Request

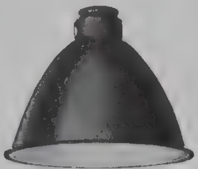
Westinghouse Snap-In Industrial Reflectors and Clamp Holders

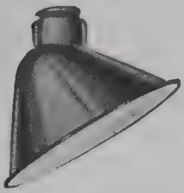
For 50 to 200-Watt Incandescent Lamps
Interchangeable Reflectors

Approved by Underwriters' Laboratories
Meets Requirements of RLM Standards Institute


RLM Standard Dome


Shallow Dome


RLM Standard Deep Bowl


RLM Standard Symmetrical Angle

Application—Snap-In Reflector and Clamp Holder unit provides a simple and dependable method of suspending 2¼-inch standard heel industrial reflector to brass shell, porcelain or weatherproof socket, or standard 2¼-inch shade holder.

Complete Unit consists of a reflector and a clamp holder. Clamp holders are available in three types—for brass shell sockets, standard porcelain sockets and weatherproof metal-clad inside thread sockets.

Holders—Weatherproof metal-clad inside thread socket holder is made of steel with bonderized finish. Has four steel lugs which project from sides of lower ring section for attachment to reflector. Top section with male thread engages threads on inside of metal-clad socket.

Brass shell and porcelain or composition socket holder is made of steel with bright finish. A flange in lower ring engages flange in reflector neck and is held tightly in position by pressure from straps on inside of holder which serve to fasten whole assembly to socket.

Reflector is made of highest grade porcelain enameled steel conforming with RLM specifications. Standard Dome, Deep Bowl and Symmetrical Angle reflectors are approved as RLM standard, except as noted.

Finish of reflector is gray outside and white inside. Bead is black.

Accessories—Wire guards and glass covers are available as accessories.

Lamp is not included.

RLM Standard Dome

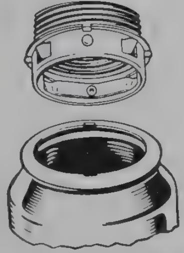
	§Complete Unit with Clamp Holder						Reflector Only		
	For Brass Shell Sockets		For Porcelain Sockets		For Metal Clad Sockets			Approx. Dimen., In.	
Lamp Size Watts	Style No.	Each	Style No.	Each	Style No.	Each	Style No.	Diam.	Depth
*100	349072	$3.90	349077	$3.90	785653	$3.90	326100	12	5⅝
150	349073	4.40	349078	4.40	785654	4.40	326150	14	6⅝
200	349074	5.00	349079	5.00	785655	5.00	326200	16	7¾
*Shallow Dome									
50–75	349064	$3.30	349068	$3.30	785657	$3.30	323060	12	3⅞
100	349065	3.60	349069	3.60	785658	3.60	323100	12	4⅞
150	788218	4.50	788219	4.50	785659	4.50	788227	14	5⅞
200	787582	5.60	787643	5.60	785660	5.60	787577	16	7

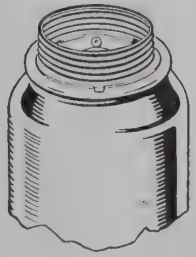
RLM Standard Deep Bowl

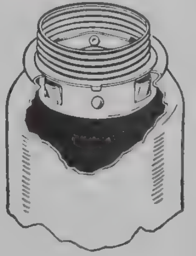
	§Complete Unit with Clamp Holder						Reflector Only		
	For Brass Shell Sockets		For Porcelain Sockets		For Metal Clad Sockets			Approx. Dimen., In.	
Lamp Size Watts	Style No.	Each	Style No.	Each	Style No.	Each	Style No.	Diam.	Depth
‡75–100	349087	$3.50	349091	$3.50	785663	$3.50	327100	8	6
†150–200	349089	4.20	349093	4.20	785665	4.20	327200	10	8⅛

RLM Standard Symmetrical Angle

*60– 75	789283	$3.30	789284	$3.30	785667	$3.30	324060	8	6¼
‡75–100	349081	3.30	349084	3.30	785668	3.30	324100	8	7½
150	1119493	4.20	1119497	4.20	1119501	4.20	324150	10	9⅜


Clamp Holder in Correct Position to Insert into Reflector Neck


Clamp Holder Correctly Installed in Reflector Neck


Cutaway Section Showing Position of Lugs under Reflector Flange

Clamp Holders Only

For Brass Shell Sockets

No.	1371605
Each	$.60
Standard Package	10
Weight per Std. Pkg.....lb.	2

For Porcelain Sockets

No.	1371606
Each	$.60
Standard Package	10
Weight per Std. Pkg.....lb.	2

For Metal-Clad Sockets

No.	1371604
Each	$.60
Standard Package	10
Weight per Std. Pkg.	2

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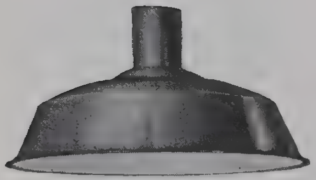
*Does not carry RLM label. †Not approved as RLM standard when used with 150-watt lamps. ‡Not approved as RLM standard when used with 75-watt lamp. §Reflectors and clamp holders shipped separately.

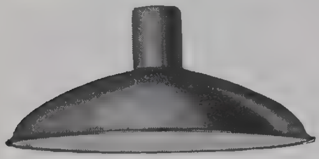
Westinghouse Bayonet Heel Industrial Incandescent Luminaires

For 100 to 1500-Watt Lamps
Interchangeable Reflectors

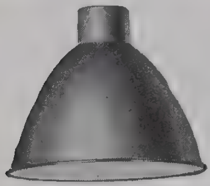
Approved by Underwriters' Laboratories
Meets Requirements of RLM Standards Institute



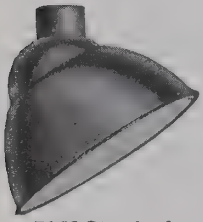
RLM Standard Dome



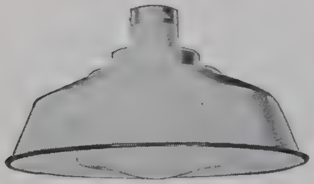
Shallow Dome



RLM Standard Deep Bowl



RLM Standard Symmetrical Angle



RLM Classteel Diffuser

RLM Standard Dome

Lamp Size Watts	‖With ½-In. Conduit Hood Style No.	Each	With 4-In. Outlet Box Hood Style No.	Each	Reflector Only Style No.	Each	Approx. Diam. In.	Approx. Depth In.	Qty.	Std. Pkg. Wt. Lb.
¶100	343701	$5.30	343707	$5.30	306100	$3.20	12	5¼	10	25
150	343702	5.80	343708	5.80	306150	3.70	14	6⅜	10	30
200	343703	6.50	343709	6.50	306200	4.40	16	7½	10	42
300–500	343704	8.50	343710	8.50	306500	5.40	18	8⅛	5	30
*750–1500	343705	11.60	343711	11.60	306000	8.50	20	11⅛	5	50

¶Shallow Dome

Lamp Size Watts	‖With ½-In. Conduit Hood Style No.	Each	With 4-In. Outlet Box Hood Style No.	Each	Reflector Only Style No.	Each	Approx. Diam. In.	Approx. Depth In.	Qty.	Std. Pkg. Wt. Lb.
100	343523	$5.30	343526	$5.30	303100	$3.20	12	4½	10	22
150	789102	5.80	789100	5.80	788223	3.70	14	5⅝	10	26
200	789103	6.50	789101	6.50	787576	4.40	16	6¾	10	35
300–500	343102	8.50	343104	8.50	303500	5.40	18	7¼	5	25

RLM Standard Deep Bowl

Lamp Size Watts	‖With ½-In. Conduit Hood Style No.	Each	With 4-In. Outlet Box Hood Style No.	Each	Reflector Only Style No.	Each	Approx. Diam. In.	Approx. Depth In.	Qty.	Std. Pkg. Wt. Lb.
100	343748	$5.00	343754	$5.00	307100	$2.90	8	5¾	10	15
†150–200	343750	5.60	343756	5.60	307200	3.50	10	7⅞	10	25
300–500	343751	8.40	343757	8.40	307500	5.30	12	8⅝	5	20
750–1500	343752	10.30	343758	10.30	307000	7.20	15	12½	5	30

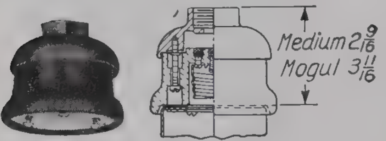
RLM Standard Symmetrical Angle

Lamp Size Watts	‖With ½-In. Conduit Hood Style No.	Each	With 4-In. Outlet Box Hood Style No.	Each	Reflector Only Style No.	Each	Approx. Diam. In.	Approx. Depth In.	Qty.	Std. Pkg. Wt. Lb.
100	343791	$4.90	343796	$4.90	304100	$2.80	8	7¼	10	15
‡150–200	1119472	5.50	1119473	5.50	304150	3.40	10	9⅛	10	25
300–500	343793	7.80	343798	7.80	304500	4.70	14	12	5	20
750–1500	343794	12.30	343799	12.30	304000	9.20	16	15⅝	5	30

RLM Glassteel Diffuser with Opal Globe

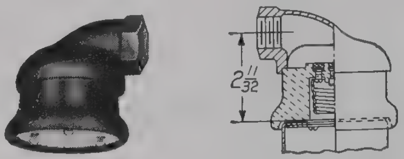
Lamp Size Watts	‖With ½-In. Conduit Hood Style No.	Each	With 4-In. Outlet Box Hood Style No.	Each	Reflector Only Style No.	Each	Approx. Diam. In.	Approx. Depth In.	Qty.	Std. Pkg. Wt. Lb.
†150–200	343018	$14.50	343020	$14.50	§349801	$7.70	18	7⅞	4	25
300–500	343019	20.10	343021	20.10	§349802	9.40	20	8⅞	4	35

‖½-Inch Conduit Hoods



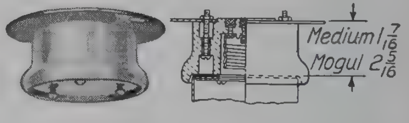
‖Style No.	336387	336391
Each	$2.10	3.10
Lamp Size..watts	100–200	300–1500
Std. Pkg.	10	5
Wt., Std. Pkg..lb.	16	13

90° ½-Inch Conduit Hoods



Style No.	786742
Each	$2.10
Lamp Size ... watts	100–200
Standard Package	10
Weight per Std. Pkg. pounds	18

4-Inch Outlet Box Hoods



Style No.	336389	336393
Each	$2.10	3.10
Lamp Size..watts	100–200	300–1500
Std. Pkg.	10	5
Wt., Std. Pkg.lb.	16	13

Glasteel Diffuser Globes

Style No.	349895	349898
Each	$3.70	5.70
Lamp Size ... watts	150–200	300–500
Diameter ... inches	10	12
Fitter ... inches	5	6
Standard Package	4	4
Weight per Standard Package ... pounds	12	18

Wire guards and glass covers are available as accessories.

*Glass covers should not be used with lamps over 1000 watts due to heat limitations.

†Not approved as RLM std. when used with 150-watt lamp.

‡Not approved as RLM std. when used with 200-watt lamp.

§Reflector only; globe is not included.

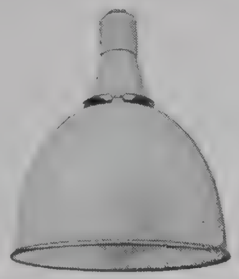
‖Style 336388, medium ¾-in. conduit hood or 336392, mogul ¾-in. conduit hood will be furnished when specified at the same price.

¶Not approved as RLM standard.

Westinghouse Ventilated High Bay Industrial Filament and Mercury Luminaires

For 300 to 1500-Watt Incandescent Lamps—400 and 1000-Watt Mercury Lamps
Locklite and One-Piece Construction

Listed by Underwriters' Laboratories



Application—One-piece and Locklite ventilated luminaires are designed for use with incandescent and mercury lamps. Particularly suited for lighting assembly areas, press shops, foundries, and other industrial areas where high light output per luminaire is required. Ventilating opening is located between the reflector body and neck extension. Assures convection ventilation that uniformly sweeps entire reflector surface keeping all control surfaces clean. Location and shielding prevents direct light from escaping and provides an adequate drip shield.

One-Piece Design

Complete Unit consists of a reflector with lampholder assembly.

Reflector Assembly consists of a reflector body and neck extension joined at four points by means of screws and self-locking acorn nuts (except machine screw nuts and lock-washers used on 24-inch diameter units). Body is spun from a single sheet of heavy gage aluminum with a beaded bottom edge for rigidity. Neck extension also spun from heavy gage aluminum, with an outward flare at the bottom.

Lampholder Assembly consists of a mogul skeleton lampholder (porcelain shell in 1000-watt mercury luminaires) mounted on a cast alloy adapter, which is screwed into a cast cap. Suitable stilts are provided when required to properly position the lamp's light center. Adapter seats against top of the neck extension with an external left-hand threaded section extending through the top of the neck extension which engages the cast cap.

Finish—All sheet aluminum parts (except reflecting surface of narrow distribution units using 400 and 1000-watt fluorescent mercury lamps, which is polished prior to the Alzak processing) are diffuse finish. The outside of the reflector of the medium distribution 1000-watt mercury unit is finished with black baked enamel.

Mounting—Adapter casting tapped for ¾-inch conduit mounting, and ½ to ¾-inch reducer provided for use with ½-inch conduit when required.

Locklite Design

Complete Unit consists of a hood and a reflector with lampholder assembly.

Hood Assembly consists of a steel housing which encloses the contact receptacle. Three slotted cams in the housing engage the reflector assembly. Flexible mounting of contact receptacle on two heavy springs insures positive contact.

Reflector Assembly is similar to one-piece design.

Lampholder Assembly consists of a mogul, skeleton type lampholder (mounted in the reflector neck) with porcelain base and special contacts which make electrical connection with the hood assembly contacts when mechanically locked in position. A steel cap attached to the neck extension permits easy attachment of the reflector to the hood.

Finish—Same as one-piece luminaire except that the hood is baked-on enamel. Locklite cap and all steel hardware are cadmium-plated.

One-Piece Luminaire

Incandescent

Lamp Size Watts	Distribution	Complete Luminaire Style No.	Complete Luminaire Each
300–500	Wide	1568 876	$16.10
750–1000	Wide	1568 877	19.10
750–1500	Wide	1568 878	23.30
300–500	Narrow	1568 879	19.10
750–1500	Narrow	1568 880	23.30

Mercury

Lamp Size Watts	Distribution	Complete Luminaire Style No.	Complete Luminaire Each
400	Wide	1568 881	$23.30
400	Medium	1568 882	23.30
400	Narrow	1568 883	23.30
400	Narrow	1568 884	27.00
1000	Medium	1568 885	28.20
1000	Narrow	1569 415	51.00
1000	Wide	1569 416	39.20

Locklite Luminaire

Incandescent

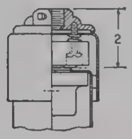
Lamp Size Watts	Distribution	Complete Luminaire Style No. *With ½-In. Conduit Mounting	Complete Luminaire Style No. With Outlet Box Mounting	Complete Luminaire Each	Reflector Only Style No.
300-500	Wide	1568 895	1568 904	$17.60	1568 886
750–1000	Wide	1568 896	1568 905	20.90	1568 887
750–1500	Wide	1568 897	1568 906	24.60	1568 888
300–500	Narrow	1568 898	1568 907	20.90	1568 889
750–1500	Narrow	1568 899	1568 908	24.60	1568 890

Mercury

Lamp Size Watts	Distribution	Complete Luminaire Style No. *With ½-In. Conduit Mounting	Complete Luminaire Style No. With Outlet Box Mounting	Complete Luminaire Each	Reflector Only Style No.
400	Wide	1568 900	1568 909	$24.60	1568 891
400	Medium	1568 901	1568 910	24.60	1568 892
400	Narrow	1568 902	1568 911	24.60	1568 893
400	Narrow	1568 903	1568 912	28.30	1568 894

Conduit Hoods

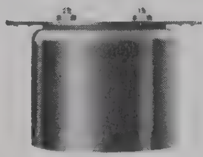
Lamp Size, 100–1500 Watts

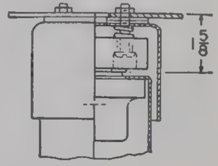


No.	1217970	1217971
Each	$1.50	1.50
Size Conduit ... inches	½	¾
Standard Package	10	10
Weight per Standard Package ... pounds	18	18

4-Inch Outlet Box Hoods

Lamp Size, 100–1500 Watts





No.	1217969
Each	$1.50
Standard Package	10
Weight per Standard Package ... pounds	16

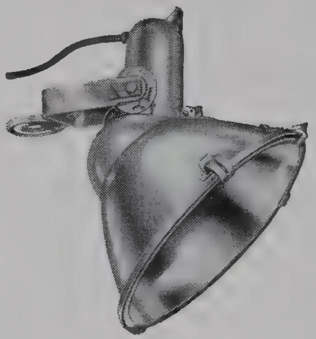
Locklite Renewal Parts

Style No.	Each	Description	Std. Pkg. Qty.	Std. Pkg. Wt., Lb.
892284	$1.90	Mogul Keyless Skeleton Socket	10	15
892298	2.10	Mogul Skeleton Shock Absorbing Socket	10	15
892282	1.00	Porcelain Receptacle for Hood	10	10

*Hood for ¾-inch conduit mounting can be supplied when requested; specify.

Westinghouse Ground Area Floodlights

Listed by Underwriters' Laboratories



Application—Durable weather-tight unit designed and constructed to meet N.E.M.A. FL6-210 Standards for enclosed floodlights. The floodlight, arranged for vertical burning of 750 to 1500-watt lamps, consists of a mounting bracket and a removable reflector and lens assembly.

Mounting Bracket—The swingover bow type bracket consists of an aluminum headpiece, or socket housing, a heavy U-shaped bow which pivots from the head piece, and a hot galvanized cast iron cross-arm bracket which supports the bow. At one point of the bow there is a degree marker dial for vertical adjustment through a range of 80 degrees, with a reset stop. The cross-arm bracket is slotted for horizontal adjustment through a range of 180 degrees.

Reflector—Reflector hinges on the mounting bracket and is locked in position by a heavy duty spring clamp. Both hinge and clamp provide pressure on joining gasket assuring weather-tight seal. The reflector is spun from heavy gage Alclad aluminum sheet, the edge rolled to form a rugged bead. The inner surface is etched for diffuse reflection, or polished for specular reflection, and treated by the Alzak process.

Lens Assembly—No. VRC-18, plain lens, flat heat and impact resistant glass. Stippled and spread lens, convex heat treated glass. No. VRC-20, plain lens, flat heat and impact resistant glass.

The lenses for both floodlights are permanently clamped in a split non-corrosive channel ring. A stainless steel clip on the lens ring is slotted to engage a small bracket at the top edge of the reflector. The lens ring seats against an asbestos gasket under pressure of three stainless steel spring clamps.

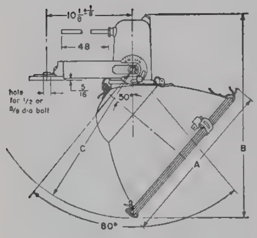
Wiring—Brackets for swingover mounting are furnished wired with four feet of two conductor, asbestos insulated, rubber jacketed cable.

Type VRC-18 Narrow Beam—Specular Reflector

Lens	Comp. Unit Style No.	Comp. Unit Each	Reflector Assembly Style No.	Lens Assembly Style No.	Bracket Style No.	Comp. Unit Net Wt. Lb.	Comp. Unit Ship. Wt. Lb.
Plain	1569749	$53.60	*1569741	....	1569651	21	30
Stippled	1569750	53.60	1569740	1569748	1569651	21	30
Spread	1569751	53.60	1569740	1569752	1569651	21	30
None	1570827	37.90	1569740	....	1569651	12	22
Type VRC-18 Wide Beam—Diffuse Reflector							
Plain	1569753	$46.30	*1569745	....	1569651	21	30
Stippled	1569754	46.30	1569744	1569748	1569651	21	30
Spread	1569755	46.30	1569744	1569752	1569651	21	30
None	1570828	30.50	1569744	....	1569651	12	22
Type VRC-20 Narrow Beam—Specular Reflector							
Plain	1569758	$60.60	*1569757	....	1569651	27	39

*Includes lens assembly.

Dimensions and Photometric Data



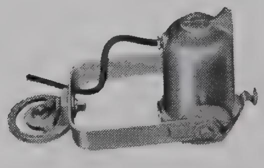
Dimensions

Type		VRC-18	VRC-20
Dimension A	inches	20	22
Dimension B	inches	24⅞	27¼
Dimension C	inches	18	20¼

Photometric Data

Lens		Type VRC-18 None	Type VRC-18 Plain	Type VRC-18 Diffusing	Type VRC-20 Plain
Narrow Beam Reflector:					
Beam Spread	degrees	31x28	34x31	66x63	25x22
Beam Lumens		18000	16100	19500	14280
Wide Beam Reflector:					
Beam Spread	degrees	88x72	80x72	98x91	.....
Beam Lumens		21800	19300	19100	.....

Bow Type Swing Over Mounting Bracket



Style No. **1220533**, Includes 4 Feet of Two Conductor Cable....................................each **$11.60**

Accessories

Style No.	Description	Each
1119656	Stippled Lens for Type VRC-18...........	**$12.60**
1217647	Rectilinear Spread Lens for Type VRC-18.	**12.60**
1122606	Plain Impact Resisting Lens for Type VRC-18..............................	**12.60**
892865	Plain Impact Resisting Lens for Type VRC-20..............................	**18.00**
1569765	Lens Holding Ring for Clamp-On Type VRC-18..............................	**4.20**
1569766	Lens Holding Ring for Clamp-On Type VRC-20..............................	**6.30**
789813	Replacement Socket for No. 1220533 Swing Over Bracket.............	**.90**

Westinghouse Ground Area Floodlights

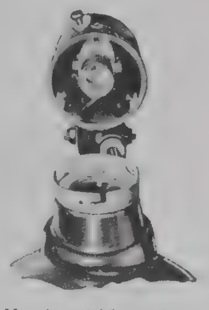
Types AF-16 and AFA-16

Type AF-16 Floodlight For Cross-Arm Mounting

Open types consisting of a mounting bracket with socket and a reflector with an integrally attached visor. Suitable for lighting sports areas, construction projects, service stations, carloading docks, industrial plants, driveways and similar installations.

Designed to provide proper light cut-off to eliminate blinding glare and produce a medium or wide beam or high efficiency.

REFLECTOR: Made of heavy gage annealed sheet iron, round in shape, for full control of the beam. To protect the lamp, a visor of the same material as the reflector is crimped and welded to the reflector, extending 9½ inches from reflector at top and 3 inches from bottom. After assembly of reflector, visor, extension and heel, a vitreous enamel finish, white inside and gray outside. A bayonet heel of drawn steel is bolted to the extension heel and reinforced by a steel cup on the inside of the reflector.



Head and Mounting Bracket Assembly

AUXILIARY REFLECTOR: The Type AFA reflector is equipped with an auxiliary Alzak aluminum reflector, 14 inches in diameter, parabolic in shape, attached to the steel reflector by three screws. The Type AF reflector is furnished without the auxiliary reflector.

MOUNTING BRACKETS: The cross arm, post top, pipe clamp, or conduit mountings are available.

CROSS ARM MOUNTING: The standard cross arm mounting bracket for the Type AF-16 and AFA-16 floodlights is of heavy cast iron, consisting of socket housing or head-piece bolted to a bracket arm which is, in turn, bolted to the cross arm by means of two ½-inch bolts. The bracket castings are gray baked enamel finish.

SOCKET: The mounting brackets are equipped with a skeleton mogul screw base socket.

WIRING: Four feet of asbestos insulated wire is provided, except on pipe clamp and conduit brackets which are unwired.

LAMPS: Designed for use with 1500, 1000 or 750-watt PS-52 general service lamps. Lamps are not included.

Type AF-16

	Complete			Reflector Only		†Bracket Only	
Description	No.	Each	*Ship. Wt. Lb.	No.	Each	No.	Each
Cross Arm	888055	$19.20	30	789922	$10.80	1568383	$8.40
2-In. Post Top	888056	22.70	30	789922	10.80	789862	11.90

Type AFA-16

	Complete			Reflector Only		†Bracket Only	
Description	No.	Each	*Ship. Wt. Lb.	No.	Each	No.	Each
Cross Arm	888063	$21.00	31	789923	$12.60	1568383	$8.40
2-In. Post Top	888064	24.50	31	789923	12.60	789862	11.90

Photometric Data
For Estimating Purposes Only

		Beam Spread Degrees		
Type	Lamp Watts	Horizontal	Vertical	Beam Lumens
AF -16	1500	148	147	21730
AFA-16	1500	52	45	13300

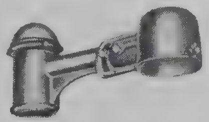
All data are for 1500-watt PS-52 lamps, 33000 lumens.

*For duplex bracket with two reflectors, double weights. †Other mounting arrangements can be obtained by ordering reflector only and bracket listed below.

Mounting Brackets and Parts

Cross Arm Mounting Bracket

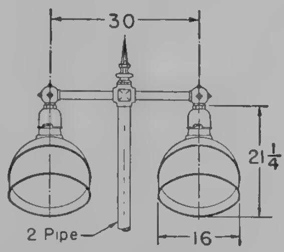
Pipe Clamp Bracket



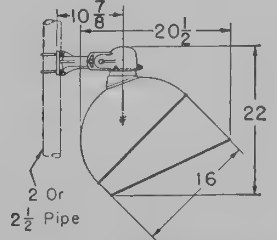
Post Top Mounting

No.	Description	Each
888282	1½-Inch Post Top Bracket	$11.90
789862	2-Inch Post Top Bracket	11.90
888382	Dupex Bracket for 2-Inch Pipe	27.30
789861	2 and 3-Inch Pipe Clamp Bracket	11.90
888283	1-Inch Conduit Socket Hood	6.30
1375338	Lamp Socket for All Other Mtg. Brkts.	1.25
789948	Auxiliary Alzak Reflector for AFA-16	1.90

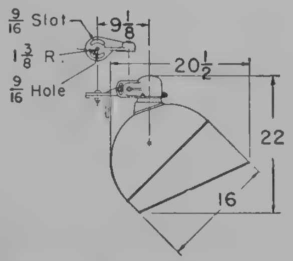
Approximate Dimensions, Inches—Do Not Use for Construction Purposes



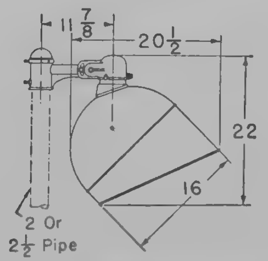
Duplex Bracket Mounting



Pipe Clamp Bracket Mounting



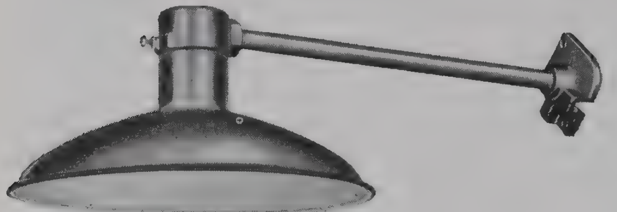
Cross Arm Bracket Mounting



Post Top Bracket Mounting

No. 1372663 Westinghouse Industrial Incandescent Yard Lighting Units

For 75 or 150-Watt Lamps



Suitable for outdoor lighting on the farm or in the city. Used for lighting yards, driveways, barns, garages, etc.

Consists of a reflector, socket, hood, conduit bracket, wall plate and lag screws.

Reflector is made of high grade steel with porcelain enamel finish, white inside and gray outside. Diameter, 14 inches. Hood is made of cast iron with side outlet mounting to accommodate conduit bracket. Equipped with a medium socket. Finish is gray paint.

Conduit bracket is ½-inch conduit pipe threaded at both ends to fit hood and wall plate. Length, 16 inches. Wall plate made of cast iron for flat wall mounting, and is also suitable for wood pole mounting. Designed with wire ways and tapped for ½-inch conduit bracket. Gray paint finish on both conduit bracket and wall plate.

Unit is supplied with two ⅜x2-inch lag screws for mounting.

Lamps of 75 to 150 watts are recommended for use as standard. For 32-volt service 50 or 100-watt size should be used. Lamp is not included.

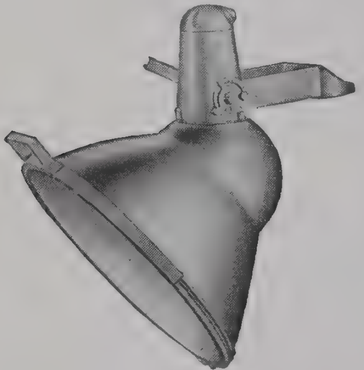
Individually packed in carton ready to be assembled.

Approximate weight, 8 pounds.

Style No. **1372663**.............................each **$6.50**

Series 4000 Steber Sportsliters

750, 1000 or 1500 Watts
Listed by Underwriters' Laboratories
Schedule A



For floodlighting athletic fields, golf driving ranges, beaches, other sport areas requiring high intensity illumination; for protective lighting of industrial plants, railroad yards, or for lighting night construction projects.

Versatile mounting brackets include cross-arm, clamp (horizontal or vertical) for 1 to 2-inch pipe, wall flange and pole clamp with pole top entrance fitting.

Reflector of heavy Alzak aluminum, parabolic and spherical in shape, with a reinforced bead. Equipped with beam sight horizontal and vertical indicator plates with 5-degree gradations to set for accurate aiming, built in repositioning stop and built-on service wrench.

Thermal shock and impact resistant lens; stainless steel slide-on lens ring with hand grip and pressure type clamp-hinge; gasket for weatherproof seal. Mogul base clear lamps recommended. Packed 1 in a standard package.

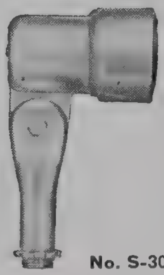
	88°, Medium Beam Diffuse Alzak				36°, Narrow Beam Specular Alzak				*Wt.
	Open Type		Enclosed Type		Open Type		Enclosed Type		Lb. Per Std.
Mounting Bracket	No.	Each	No.	Each	No.	Each	No.	Each	Pkg.
Yoke Only	**4000**	**$26.00**	**4005**	**$43.00**	**4010**	**$35.00**	**4015**	**$52.00**	15
Cross-Arm	**4001**	**28.50**	**4006**	**45.50**	**4011**	**37.50**	**4016**	**54.50**	16
Clamp	**4002**	**28.25**	**4007**	**45.25**	**4012**	**37.25**	**4017**	**54.25**	18
Wall	**4003**	**30.25**	**4008**	**47.25**	**4013**	**39.25**	**4018**	**56.25**	17
Pole	**4004**	**30.75**	**4009**	**47.75**	**4014**	**39.75**	**4019**	**56.75**	19

*Weights are for open type; add 7 pounds for enclosed.

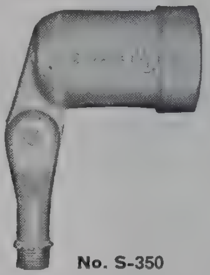
Steberlite Cast Aluminum Weatherproof Lampholders

Medium and Mogul Base

Listed by Underwriters' Laboratories



No. S-300



No. S-350

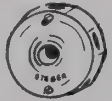
No. S-300. With medium base. Completely wired. Mounting nipple threaded ½ inch with lock nut. Special silicone gasket for weather protection with either PAR-38 or R-40 lamps. Standard package, 12; weight, 11 pounds.

No. S-300, Less Lamp.........................each **$3.00**

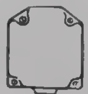
No. S-350. With mogul base. Completely wired. Mounting nipple threaded ½ inch with lock nut. Special silicone rubber gasket protects R-40 mogul base lamp from all kinds of weather. Standard package, 6; weight, 9 pounds.

No. S-350, Less Lamp.........................each **$6.00**

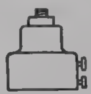
Accessories



No. S-316



No. S-301



No. S-302

No. S-303

No. C-58

No. C-5

No. U-45

No. S-301 adapter box. Cast aluminum, with junction box cover. Has 5 openings tapped ½-inch female with two ½-inch male plug closures. Standard package, 6; weight 6 pounds...each **$3.00**

No. S-314. 4-Inch Round Adapter Fitting. Cast aluminum. Complete with weatherproof gasket and cover attached to box with 2 machine screws. Provides wiring compartment with 6 openings tapped ½-inch female for mounting up to 5 S-300 or S-350 lampholders and attachment of entire cluster to S-302 pole slip fitter or directly to ½-inch conduit. For unused openings 3½-inch male plugs are furnished. Standard package, 6; weight, 4½ pounds........each **$2.50**

No. S-315, 3¼-Inch Round Adapter Fitting. Cast aluminum. Same as S-314 except 4 tapped openings and 1 plug closure. For 2 or 3 lampholders. Standard package, 6; weight, 3 pounds.............................each **$1.90**

No. S-316. 4-Inch Round Adapter Fitting. Cast aluminum. Same as S-314 except furnished with cover having ½-inch tapped opening to provide for mounting up to 6 S-300 or S-350 lampholders. Standard package, 6; weight, 4½ pounds...................................each **$2.90**

No. S-307. Wire Guard. Rust-resistant, electrically welded. Clamps on S-300 lampholder to protect either PAR-38 or R-40 lamps. Standard package, 6; weight, 4 pounds. ....each **$1.40**

No. S-308. Wire Guard. Same as S-307 except to clamp on S-350 lampholder to protect R-40 lamps. Standard package, 6; weight, 4 pounds.........................each **$1.80**

No. S-302. Pole Slip Fitter. Cast. Fits either 1½ or 2-inch pipe. Tapped ½ inch. Furnished with ½-inch running thread to take Nos. S-301 and S-311. Standard package, 6; weight, 6 pounds..................................each **$1.90**

No. S-303. Outlet Box Cover. Size, 4 inches. Cast, with top opening tapped ½ inch for lampholders, extensions or fittings. Standard package 12; weight, 6½ lb....each **$.60**

No. C-58. Combination Flange. For pole or wall mounting, or open wiring. Cast. Insulating bushings protect entrance leads. Threaded for ½-inch conduit; equipped with set-screws. Standard package, 12; weight, 10 lb..each **$.45**

No. C-5. Combination Flange. Junction box type for pole or wall mounting. Removable cover and gasket. Has ½-inch conduit entrance at bottom. Equipped with set-screw for fixture alignment. Furnished with 2-hole bushing. Standard package, 6; weight, 5 pounds.........each **$1.60**

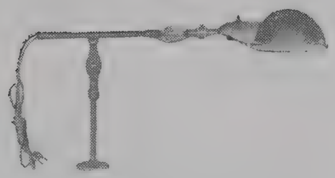
No. U-45. Color Lens. Heat resisting. Available in 4 colors; use suffix A, R, G, B to denote amber, red, green or blue. Fits No. S-304 housing. Standard package, 6; weight, 2 pounds......................................each **$1.00**

Fostoria Localites

Listed by Underwriters' Laboratories

Vista Green Semi-Gloss Baked Enamel Finish

No. 7-BP-705



With 26-inch extension; preferred for use over benches and tables. Completely wired with heavy duty medium screw industrial socket. Rugged and very flexible.

Packed 4 in a standard package, without lamps.

No. **7-BP-705**....................................each **$8.20**

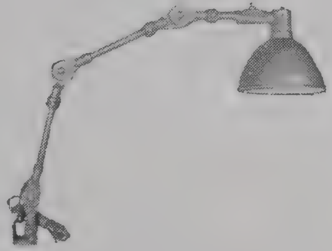
No. 55-BH-701

Overall, 36 inches; popular for use on machine tools. Completely wired with heavy duty medium screw industrial socket. Strong construction, very flexible.

Packed 4 in a standard package, without lamps.

No. **55-BH-701**....................................each **$9.30**

No. 55-CX-701



Overall, 35 inches. Completely wired with keyless porcelain socket, T-rated toggle switch cord and plug.

Packed 4 in a standard package, without lamps.

No. **55-CX-701**....................................each **$10.55**

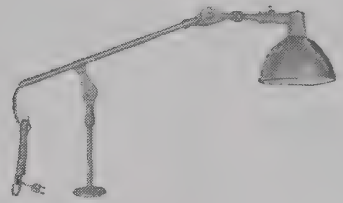
No. 18-HX-600

Approximately 28 inches overall. Designed for use on assembly and repair benches. Completely wired with keyless porcelain socket, T-rated toggle switch in base, duplex outlet, always hot, cord and plug.

Packed 4 in a standard package; without lamps.

No. **18-HX-600**....................................each **$10.30**

No. 8-CX-705

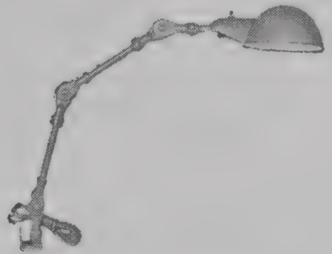


With 30-inch extension. Completely wired with keyless porcelain socket, T-rated toggle switch cord and plug.

Packed 4 in a standard package, without lamps.

No. **8-CX-705**....................................each **$9.45**

No. 66-BP-701

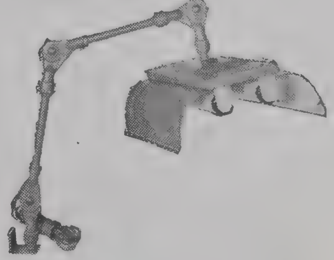


Overall, 47½ inches. Rugged and flexible; for use over benches and tables, also larger machine tools. Completely wired with heavy duty medium screw industrial socket.

Packed 4 in a standard package, without lamps.

No. **66-BP-701**....................................each **$10.15**

No. 66-FLB-701

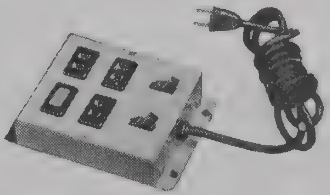


Approximately 35 inches without reflector. Completely wired for two 14-watt T-12 fluorescent lamps in series with .5 ampere, 60-watt ballast lamp; 115 volts, 60 cycles, a.c. or d.c. Not listed by Underwriters' Laboratories.

Packed 4 in a standard package, without lamps.

No. **66-FLB-701**....................................each **$18.05**

No. POB-3



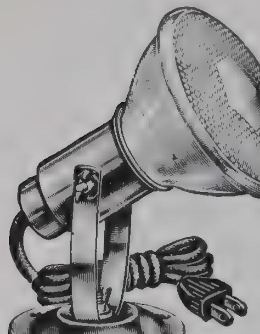
A portable outlet box with three outlets, two with throw switches and one constantly hot.

For laboratories, industrial benches, photographic dark rooms, photographers, window and counter displays, kitchen work tables, bedrooms, utility rooms, hobby or work shop, radio, television, watchmakers, garages, carpenters, mechanics, dentists, doctors, hospitals and offices.

Packed 6 in a standard package.

No. **POB-3**....................................each **$7.55**

Other Lengths and Bases are Available—Complete Information upon Request



No. 2 Steber Utilites

Listed by Underwriters' Laboratories

For outdoors, indoors, homes, counter lighting, window displays, etc. Counter, ceiling, wall or outlet box mounted.

Takes PAR-38 or R-40 reflector, flood, spot, infrared heat, drying, sun lamps, etc. Drawn steel. Weatherproof finish. U bracket adjustment. Gasket makes weatherproof seal between lamp and socket. Heavy base plate for surface mounting. Punched for attachment to 3¼ or 4-inch outlet box. Cord and plug.

Carton, 1; standard package, 12, package weight, 12 pounds.

No. 2, w/Base Plate for Surf. or Out. Box Mtg.	each	**$2.00**
No. 2-SO, w/Base Plate and Ground Spike	each	**2.05**
No. 2-S, w/Ground Spike	each	**2.00**

No. AL-4 Steber Swivel Aligners

Outlet Box Cover Type

For aligning fixtures when hung from an uneven ceiling for a neat, vertical installation. Drilled for ½-inch conduit, fits 3¼ or 4-inch outlet boxes. Without shock absorber.

Carton, 50, weight, 22½ pounds.

No. AL-4	each	**$.75**

Bryant Fluorescent Lampholders and Starter Sockets

Standard Type

For 14, 15, 20, 25, 30 and 40-Watt Lamps
Listed by Underwriters' Laboratories
660 Watts, 250 Volts

Packed 10 in a carton, 100 in a standard package.

Lampholders

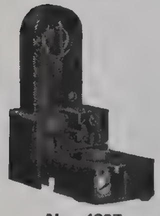
Twist Turn Contacting—Flush or Surface Mounting
For 1 and 1-½ Inch Lamps

No. 4300

No.	Per 100	Description	Wt., Lb. Std. Pkg.
4300	**$14.00**	Black	6
4300-W	**16.00**	White	6

Lampholders With Starter Sockets

Twist Turn Contacting



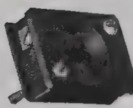
No. 4307

No.	Per 100	Description	Wt., Lb. Std. Pkg.
4307	**$27.50**	Black	14
*4307-W	**30.50**	White	14

*Lampholder only is white; starter socket is black.

Starter Sockets

Separate or Remote Mounting



No. 4309

No.	Per 100	Description	Wt., Lb. Std. Pkg.
4309	**$15.00**	Black	5

Fixture Lampholders For 1-Inch Lamps Only

Straight Push Contacting
With Metal Bracket

'No. 4303

No.	Per 100	Description	Wt., Lb. Std. Pkg.
4303	**$20.00**	Black	5
4303-W	**22.00**	White	5

With Wire Leads—For 1 and 1½-Inch Lamps

Twist Turn Contacting—Surface Mounting
With One 9-Inch and One 27-Inch Lead of No. 18 Type CF Wire

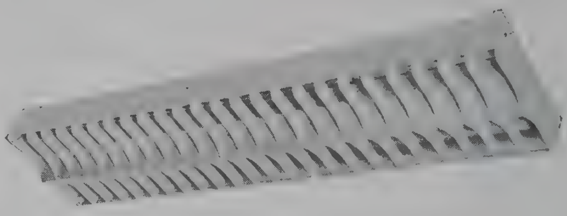
No. 4328

No.	Per 100	Description	Wt., Lb. Std. Pkg.
4328	**$20.00**	Black	6
4328-W	**21.00**	White	6

Westinghouse Type SC Commercial Fluorescent Luminaires

For 40-Watt Standard or Rapid Start Lamps or 38, 58 or 75-Watt Slimline Lamps
Individual or Continuous Strip Mounting

110 to 125 Volts, 60 Cycles, A.C.



For stores and offices. Designed for low ceiling areas. Extremely shallow, 3½ inches.

Luminaire consists of a completely wired one-piece steel channel, translucent plastic side panels and 35x35-degree louver shielding.

Channel. All electrical parts are wired and attached to the one-piece steel channel top, which also serves as wire-way. Has CBM ballasts.

Spring Clips. Prevent wire sag.

Side Panels. Made of translucent polystyrene plastic. Mounted in a continuous U channel with spring clips.

Louvers. Welded steel construction, 4-feet long. Provides 35-degree nominal lamp shielding crosswise and endwise.

End Plate. Removable for continuous row mounting.

Finish. All metal surfaces have white baked on enamel finish. Hardware is cadmium plated.

Illumination Design Data

The approximate area per luminaire required to obtain average maintained illumination level may be determined from the following table. The table is based upon the use of white lamps, a ceiling reflectance of 75 per cent, a wall reflectance of 50 per cent, and assumed good maintenance (.70 maintenance factor).

Two-Lamp Luminaires

	Lamp		*Room	Approx. Area per Luminaire, Sq. Ft. Centers, Feet				
Type	Lgth. Ft.	Type	Proportions	10	20	30	50	75
SC- **80**RP	4	Rapid Start	Wide	190	95	65	40	25
			Medium	160	80	50	30	20
			Narrow	110	55	35	20	15
SC- **76**P	4	Slimline	Wide	180	90	60	35	25
			Medium	140	75	50	30	20
			Narrow	100	50	35	20	15
SC-**150**P	8	Slimline	Wide	380	190	130	75	50
			Medium	310	150	100	60	40
			Narrow	220	110	70	45	30

Four-Lamp Luminaires

	Lamp		*Room	Approx. Area per Luminaire, Sq. Ft. Centers, Feet				
Type	Lgth. Ft.	Type	Proportions	10	20	30	50	75
SC-**160**RP	4	Rapid Start	Wide	340	170	110	70	45
			Medium	270	140	90	55	35
			Narrow	200	100	65	40	25
SC-**150**P	4	Slimline	Wide	320	160	100	65	40
			Medium	260	130	85	50	35
			Narrow	180	90	60	35	25
SC-**300**P	8	Slimline	Wide	670	340	220	130	90
			Medium	550	270	180	110	70
			Narrow	390	200	130	80	50

*Room proportions: Wide—Room width=4 or more times mounting height; Medium—Room width=2 times the mounting height; Narrow—Room width=mounting height.

Complete Luminaires

	Lamp				Ship. Wt.	Style	
Type	No.	Watts	Type	Lgth.	Lb.	No.	Each
SC- **80**RP	2	40	Rapid Start	4	27	**1569671**	**45.60**
SC-**160**RP	4	40	Rapid Start	4	42	**1569673**	**76.10**
SC- **76**P	2	38	Slimline	4	27	**1568739**	**52.50**
SC-**152**P	4	38	Slimline	4	42	**1568741**	**90.00**
SC-**150**P	2	75	Slimline	8	58	**1568747**	**85.00**
SC-**300**P	4	75	Slimline	8	93	**1568749**	**133.80**

Westinghouse Type LC Commercial Fluorescent Luminaires

For 40-Watt Standard or Rapid Start Lamps or 38 or 75-Watt Slimline Lamps
Individual or Continuous Strip Mounting

110-125 Volts, 60 Cycles, A.C.

For offices, schools and stores.

Luminaire consists of a completely wired channel, metal or translucent plastic side panels, and metal louver. Decorative end caps, top reflectors, connectors and hangers for mounting can be ordered separately. Lamps not included.

Luminaire provides direct-indirect distribution when suspended and direct distribution when surface mounted.

Design permits the use of 4-foot lamps in 8-foot channels.

Channel. All electrical parts are wired and attached to the slide-action-type central steel channel. CBM ballasts are mounted in the channel. Three clips hold wiring securely in place.

Side Panels. Available in No. 1570-566 metal or No. 1570-565 translucent plastic. Plastic panels wrap around the corners at the ends of the fixture.

Louver. Assembly consists of a channel cover and louver blades. Louver engages tabs at end permitting hinging from either side. Two types, 30x30 or 45x45 degrees.

Finish. All metal surfaces have white baked-on enamel finish. Reflecting surfaces have a reflectance of 85 per cent or more. Hardware is cadmium-plated.

Illumination Design Data

The approximate area per luminaire required to obtain average maintained illumination level may be determined from the following table. The table is based upon the use of white lamps, a ceiling reflectance of 80 per cent, wall reflectance of 50 per cent and assumed good maintenance (.70 maintenance factor).

Two-Lamp Luminaires

	Lamp				Approximate Area per Luminaire, Sq. Ft.																			
					Suspension Mounting										Surface Mounting									
					Centers, Feet																			
					10		20		30		50		75		10		20		30		50		75	
					Angle of Column and Louver, Degrees																			
Type	No.	Watt	Type	*Room Proportions	30	45	30	45	30	45	30	45	30	45	30	45	30	45	30	45	30	45	30	45
LC- 80R	2	40	Rapid Start	Wide	230	210	120	110	80	70	45	40	30	30	180	170	90	85	65	55	35	30	25	25
				Medium	190	160	95	80	60	55	35	35	25	20	160	140	80	70	50	50	30	25	20	20
				Narrow	120	110	60	55	40	35	25	20	15	15	120	110	60	55	40	35	25	20	15	15
LC- 76	2	38	Slimline	Wide	220	200	110	100	70	65	45	40	30	25	170	160	85	80	55	50	30	30	25	20
				Medium	170	150	85	75	60	50	35	30	25	20	150	130	75	65	50	45	30	25	20	15
				Narrow	120	100	60	50	40	35	25	20	15	15	120	100	60	50	40	35	25	20	15	15
LC-150	2	75	Slimline	Wide	470	420	230	210	150	140	95	75	60	55	380	330	190	170	120	110	75	70	50	45
				Medium	370	330	190	160	120	110	75	65	50	45	320	290	160	150	100	95	65	60	45	40
				Narrow	250	220	120	110	85	75	50	45	35	30	250	220	120	110	85	75	50	45	35	30
Four-Lamp Luminaires																								
LC-160R	4	40	Rapid Start	Wide	470	430	230	210	160	140	95	85	60	55	430	370	210	180	140	120	85	75	60	45
				Medium	360	330	180	170	120	110	70	65	50	45	360	310	180	150	120	100	70	60	50	40
				Narrow	240	220	120	110	80	75	50	45	30	25	260	230	130	110	90	80	55	50	35	25
LC-152	4	38	Slimline	Wide	430	390	220	200	140	130	85	75	60	55	390	370	200	170	130	110	75	65	55	45
				Medium	340	310	170	160	110	100	70	65	45	30	340	310	170	150	110	95	70	60	45	40
				Narrow	220	220	110	100	75	70	45	40	30	25	250	230	120	110	85	75	50	45	35	25
LC-300	4	75	Slimline	Wide	930	840	460	420	310	280	190	170	130	110	840	720	420	360	280	240	170	150	120	95
				Medium	710	650	360	330	240	220	140	130	95	90	710	610	360	310	240	210	140	120	95	85
				Narrow	480	440	240	220	160	150	95	85	65	60	540	470	270	230	180	160	110	90	75	65

*Room proportions: Wide—Room width=4 or more times mounting height; Medium—Room width=2 or more times mounting height; Narrow—Room width=mounting height

Complete Luminaires

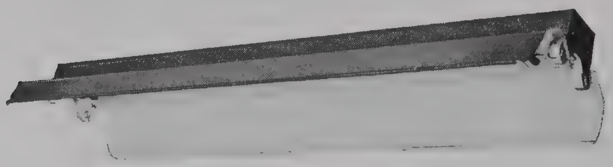
Louver Shielding, 30x30 Degrees

Type: With Plastic Side Panels	Type: With Metal Side Panels	Lamp: No.	Lamp: Watts	Lamp: Type	Lgth. Ft.	Louver Deg.	Housing No. less Side Panels	Ship. Wt. Lb.	With Plastic Side Panels: Style No.	With Plastic Side Panels: Each	With Metal Side Panels: Style No.	With Metal Side Panels: Each
LC-80RP-30	LC-80RM-30	2	40	Rapid Start	4	30	1570745	23	**1570774**	**37.60**	**1570775**	**35.00**
LC-160RP-30	LC-160RM-30	4	40	Rapid Start	4	30	1570749	37	**1570782**	**64.10**	**1570783**	**61.50**
2LC-80RP-30	2LC-80RM-30	4	40	Rapid Start	4	30	1570753	46	**1570790**	**75.20**	**1570791**	**70.00**
2LC-160RP-30	2LC-160RM-30	8	40	Rapid Start	4	30	1570757	74	**1570798**	**128.20**	**1570799**	**128.00**
LC-76P-30	LC-76M-30	2	38	Slimline	4	30	1570760	23	**1570804**	**45.70**	**1570805**	**43.10**
LC-152P-30	LC-152M-30	4	38	Slimline	4	30	1570762	37	**1570808**	**80.50**	**1570809**	**77.90**
LC-150P-30	LC-150M-30	2	75	Slimline	8	30	1570764	60	**1570812**	**72.00**	**1570813**	**66.80**
LC-300P-30	LC-300M-30	4	75	Slimline	8	30	1570766	100	**1570816**	**119.20**	**1570817**	**114.00**
Louver Shielding, 45x45 Degrees												
LC-80RP-45	LC-80RM-45	2	40	Rapid Start	4	45	1570747	24	**1570778**	**42.60**	**1570779**	**40.00**
LC-160RP-45	LC-160RM-45	4	40	Rapid Start	4	45	1570751	38	**1570786**	**69.10**	**1570787**	**66.50**
2LC-80RP-45	2LC-80RM-45	4	40	Rapid Start	4	45	1570755	48	**1570794**	**85.20**	**1570795**	**80.00**
2LC-160RP-45	2LC-160RM-45	8	40	Rapid Start	4	45	1570759	76	**1570802**	**138.20**	**1570803**	**133.00**
LC-76P-45	LC-76M-45	2	38	Slimline	4	45	1570761	24	**1570806**	**50.70**	**1570807**	**48.10**
LC-152P-45	LC-152M-45	4	38	Slimline	4	45	1570763	38	**1570810**	**85.50**	**1570811**	**82.90**
LC-150P-45	LC-150M-45	2	75	Slimline	8	45	1570765	62	**1570814**	**82.00**	**1570815**	**76.80**
LC-300P-45	LC-300M-45	4	75	Slimline	8	45	1570767	102	**1570818**	**129.20**	**1570819**	**124.00**

Westinghouse Industrial RLM Heavy Duty Fluorescent Luminaires

For 2 or 4, 90-Watt, 60-Inch Lamps—5-Inch Spacing With Open End Porcelain Enameled Steel Reflectors Individual or Continuous Strip Mounting

110-125 Volts, 60 Cycles, A.C.
Listed by Underwriters' Laboratories—Approved by RLM Standards Institute



Type 2FPC-90

Complete Luminaire consists essentially of a channel assembly and a removable reflector. Five-foot units also include end plates and chain mounting brackets for single or two-point suspension.

Channel Assembly. Heavy gage, one-piece formed steel channel with ballasts and lampholders wired. Continuous row mounting type, narrow design, arranged for slide hangers.

Lampholders. White thermo-plastic, twist turn type, rigidly supported by a backup plate. In continuous row, lampholders are back to back.

Ballasts. Two-lamp high power factor, lead-lag, brick type, ETL certified.

Reflectors. Heavy gage formed steel. Conforms with RLM standards; available with solid top or with apertures for 7 per cent upward component.

Embossed arrows in the reflector provide permanent indication of lamp controlled by each starter.

Two large spring-loaded wing locks require only a quarter turn to release reflector to permit easy maintenance.

End Plates of formed steel attach without handling loose hardware. Connectors for joining channels in continuous rows are of formed steel complete with attachment hardware. Design permits conduit mounting and wiring at connector.

Finish. Channel is finished inside and outside with gray, baked-on enamel. Reflector has a matching gray porcelain enamel outside finish; white porcelain enamel inside finish with 82 or more reflectance on reflecting surfaces. Hardware is cadmium plated.

Mounting. Provision or conduit, chain, slide hanger, or ceiling strap mounting; completely wired channel can be quickly mounted and line connections made before reflector is added.

Lamps and Starters are not included with luminaire; takes two or four standard type, 90-watt, T-17 Mogul bipin lamps.

5-Foot Units, Complete with Channel Assembly, Reflector, End Plates and Chain Mounting Brackets

Type	Description	Lamps No. of	Lamps Watts	Total Watts Incl. 90-Watt Lamps and Ballasts	Line Current at 118 V. Amp.	Approx. Ship. Wt. Lb.	No.	Each	Starters Required No.
2FPC–90	With Solid Top Reflector....	2	90	210	1.92	50	1569258	$51.40	FS85, FS85–NA, FS850
2FPCA–90	With Slotted Top Reflectors.	2	90	210	1.92	49	1569260	51.40	FS85, FS85–NA, FS850

10-Foot Units with Channel Assembly and Two Reflectors Only

End Plates, connectors and mounting accessories must be ordered separately.

Type	Description	Lamps No. of	Lamps Watts	Total Watts Incl. 90-Watt Lamps and Ballasts	Line Current at 118 V. Amp.	Approx. Ship. Wt. Lb.	No.	Each	Starters Required No.
4FPC–90	With Solid Top Reflectors...	4	90	420	3.84	80	1569259	$101.40	FS85, FS85–NA, FS850
4FPCA–90	With Slotted Top Reflectors.	4	90	420	3.84	78	1569261	101.40	FS85, FS85–NA, FS850

End Plates and Connectors

No. **1569227**, End Plate (One)....................................each	**$.70**
No. **1569228**, Connector (One)....................................each	**1.20**

Accessories and Replacement Reflectors

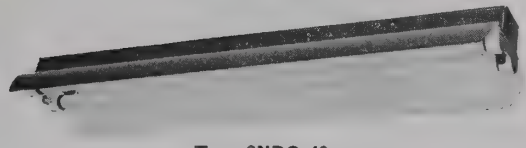
No. **1569369**, Slide Hanger......................each	**$1.00**
No. **1218718**, Messenger Cable Clamp for Slide Hanger......................................each	**.30**
No. **1217117**, Messenger Cable Clamp for Channel Mounting....................................each	**1.00**
No. **1122307**, Ceiling Mounting Strap...........each	**.70**
No. **1568628**, Chain Mounting Bracket..........each	**.20**
No. **1371806**, Louver..........................each	**$12.80**
No. **1568638**, Lamp Lock (2 Required per Lamp).ea.	**.10**
No. **1569229**, Solid Top Reflector.............each	**15.00**
No. **1569230**, Slotted Top Reflector...........each	**15.00**

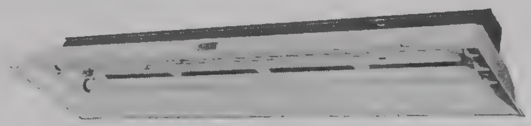
Other accessories such as 2 and 3-conductor cord and plug sets, chain sets, and canopy sets are also available; information and prices upon request.

Special 236-volt, 277-volt units and 50-cycle units can be furnished; information upon application.

Westinghouse Industrial RLM Heavy Duty Fluorescent Luminaires

For 2, 3, 4 or 6, 40-Watt, 48-Inch Lamps—3½ and 5-Inch Spacing
With Porcelain Enameled Steel Reflector—Individual or Continuous Strip Mounting
Preheat or Rapid Start
110, 125 or 220-250 Volts, 60 Cycles, A.C.
Listed by Underwriters' Laboratories—Approved by RLM Standards Institute


Type 2NDO-40


Type 2WSC-40

Type 4WSO-40

Channel Assembly. Heavy gage steel hood with completely wired ballast and lampholders. Provision for several types of mounting.

Heavy Duty Lampholders. Made of steel, enclosed; push-pull principle for easy lamp replacement. Embossed arrows in lampholders provide permanent indication of lamp controlled by each starter.

Reflector is built with rigidizing flanges and ribs, and is of formed steel (except drawn 3½-inch closed end). Narrow reflector (3½-inch lamp spacing) is constructed either open or closed, but is available only in solid top. Wide reflector (5-inch lamp spacing) is constructed either open or closed and is either solid or slotted. Reflector on semi-direct unit provides an upward component in excess of 20 per cent of the light output. Large spring-loaded wing locks near ends of each reflector require only a quarter turn to release the reflector.

Ballast. Rapid-start unit supplied with series type ballast. All preheat units supplied with lead-lag ballasts. Lead-lag rapid-start ballasts are extra.

Longitudinal Shield optional; formed from steel in V-shape; attached to reflector by spring steel hangers.

Lamps and Starters required on preheat types; not furnished (rapid-start units do not require starters).

Wiring. Furnished completely wired; can be quickly mounted and line connections made before reflector added.

Finish. Bonderized hood, light gray baked enamel finish. Solid reflector is light gray porcelain enamel outside and white porcelain enamel inside, while slotted reflector is white both inside and outside. Shield is white porcelain enamel.

Type Designation. First figure, 2, 4 or 6 indicates number of lamps. N or W—designates Narrow or Wide (narrow for 3½-inch lamp spacing on 2 and 4-lamp units; wide for 5½-inch lamp spacing on all units).

D or S—designates Direct solid reflectors or Semi-Direct slotted reflectors. O or C—designates Open or Closed end reflectors.

S—as fourth letter, indicates that a longitudinal shield is included.

Figure 40 indicates lamp wattage.

R—indicates Rapid-Start ballast.

Luminaires Complete—Unit Pack

Luminaires packed complete with end plates and chain mounting brackets. Packed 1 per carton.

*Type	Reflector Size In.	Reflector Ends	No. of Lamps	Total Watts Incl. Ballast	Line Current at 118 V.	Approx. Ship. Wt. Lb.	No.	Each	Breakdown Channel No.	Breakdown Reflector No.
2NDO-40	3½	Open	2	96	.85	28	1570578	$34.40	....	....
2NDC-40	3½	Closed	2	96	.85	29	1570581	38.40	....	....
2NDO-40R	3½	Open	2	100	.85	28	1570584	36.10	....	....
2WDO-40	5	Open	2	96	.85	34	1570590	35.50	....	....
2WDC-40	5	Closed	2	96	.85	35	1570614	39.80	....	....
3WDO-40	5	Open	3	144	1.36	38	1570593	48.00	....	....
3WDC-40	5	Closed	3	144	1.36	39	1570617	52.20	....	....

Luminaire Hoods and Reflectors—Separate Pack

Hoods and reflectors packed separately. End plates, connectors and mounting accessories must be ordered separately.

*Type	Reflector Size In.	Reflector Ends	No. of Lamps	Total Watts Incl. Ballast	Line Current at 118 V.	Approx. Ship. Wt. Lb.	No.	Each	Breakdown Channel No.	Breakdown Reflector No.
4NDO-40	3½	Open	4	192	1.70	56	1570580	$67.00	1569448	(2) 1569464
4NDC-40	3½	Closed	4	192	1.70	58	1570583	75.00	1569449	(2) 1569940
2WDO-40R	5	Open	2	100	.85	34	1570597	36.20	1569456	1569462
2WDC-40R	5	Closed	2	100	.85	35	1570621	40.50	1569456	1569942
4WDO-40	5	Open	4	192	1.70	68	1570592	69.00	1569455	(2) 1569462
4WDC-40	5	Closed	4	192	1.70	70	1570616	77.50	1569460	(2) 1569462
6WDO-40	5	Open	6	288	2.72	76	1570595	84.30	1569459	(2) 1569462
6WDC-40	5	Closed	6	288	2.72	78	1570619	92.80	1569461	(2) 1569942
2WSO-40	5	Slotted—Open	2	96	.85	34	1570606	34.50	1569454	1569463
2WSC-40	5	Slotted—Closed	2	96	.85	35	1570630	38.80	1569454	1569941
2WSO-40R	5	Slotted—Open	2	100	.85	34	1570612	36.30	1569456	1569463
2WSC-40R	5	Slotted—Closed	2	100	.85	35	1570636	40.50	1569456	1569941
4WSO-40	5	Slotted—Open	4	192	1.70	68	1570607	69.00	1569455	(2) 1569462
4WSC-40	5	Slotted—Closed	4	192	1.70	70	1570631	77.50	1569460	(2) 1569941
3WSO-40	5	Slotted—Open	3	144	1.36	38	1570609	47.00	1569458	1569463
3WSC-40	5	Slotted—Closed	3	144	1.36	39	1570633	51.30	1569458	1569941
6WSO-40	5	Slotted—Open	6	288	2.72	76	1570610	84.30	1569459	(2) 1569463
6WSC-40	5	Slotted—Closed	6	288	2.72	78	1570634	92.80	1569461	(2) 1569941

With No. S-1569387 Longitudinal Shield

Following styles include a No. S-1569387 longitudinal shield which will be shipped as a separate item as part of the breakdown; 2-lamp direct luminaires may also be equipped with longitudinal shields upon request.

*Type	Reflector Size In.	Reflector Ends	No. of Lamps	Total Watts Incl. Ballast	Line Current at 118 V.	Approx. Ship. Wt. Lb.	No.	Each	Breakdown Channel No.	Breakdown Reflector No.
2WSOS-40	5	Slotted—Open	2	96	.85	34	1570600	$41.50	1569454	1569463
2WSCS-40	5	Slotted—Closed	2	96	.85	35	1570624	42.50	1569454	1569941
2WSOS-40R	5	Slotted—Open	2	100	.85	34	1570603	43.30	1569456	1569463
2WSCS-40R	5	Slotted—Closed	2	100	.85	35	1570627	44.30	1569456	1569941
4WSOS-40	5	Slotted—Open	4	192	1.70	68	1570601	76.50	1569455	(2) 1569463
4WSCS-40	5	Slotted—Closed	4	192	1.70	70	1570625	85.00	1569460	(2) 1569941

*2 and 3-lamp units are 4 feet; 4 and 6-lamp units are 8 feet.

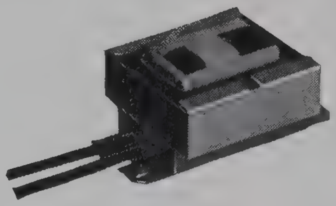
Parts and Accessories

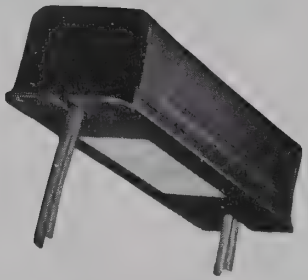
No.	Each	Description	No. Req.	No.	Each	Description	No. Req.
1569203	$.70	End Plate with Screws........	2 per row	1217117	$1.00	Channel Mounting; Messenger Cable Clamp...............	N plus 1
1569202	1.00	Connector with Screws........	N minus 1				
1569943	1.60	Spacing Connector for Continuous Runs with Closed End Reflectors.................	N minus 1	1218718	.30	Messenger Cable Clamp; Attaches to Slide Hanger......	N plus 1
1569370	1.00	Slide Hanger.................	N plus 1	1568628	.20	Chain Mounting Bracket......	N plus 1
1122307	.70	Ceiling Mounting Strap.......	N plus 1	1569387	6.00	4-Ft. Longitudinal Shield.....	1 per 4′ Reflector

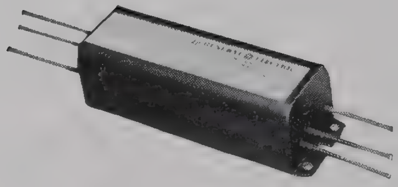
N—Number of 1-piece channels.

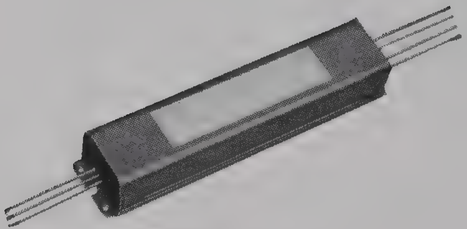
G-E Ballasts for Fluorescent Lamps

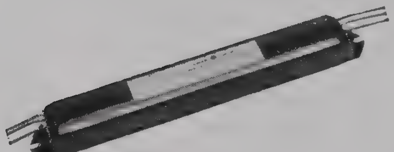
Case Style A, Bathtub Type Ballast

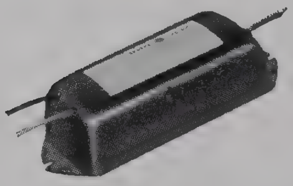

Case Style B, Clamped-Core Ballast


Case Style C, Brick Type Ballast, 2-Way Lead


Case Style C, Brick Type Ballast, Leads out End


Case Style D, Standard Cross-Section Ballast


Case Style E, Long Brickette Cross-Section Ballast


Case Style F, Short Brickette Cross-Section Ballast

Single-Lamp Ballasts for Direct Current Operation

No.	Each	Lamp Watts	Circuit Voltage	Case Style	Approximate Dimensions Inches	Standard Pkg. Qty.	Standard Pkg. Approx. Ship. Wt., Lb.	Approx. Net Wt. Lb., Each
58G690	$1.35	6–8–14–15–20	110–125	B	$4\frac{25}{32}$x$1\frac{25}{32}$x$1\frac{1}{4}$	20	18	¾
58G690	1.35	30–32–40	220–250	B	$4\frac{25}{32}$x$1\frac{25}{32}$x$1\frac{1}{4}$	20	18	¾

Filters for Suppression of Radio Interference

*Reactor-Capacitor Type

50/60 Cycles

No.	Each	Max. Circuit Voltage	Case Style	Approximate Dimensions Inches	†Approx. Watts Loss	Standard Pkg. Qty.	Standard Pkg. Approx. Ship. Wt., Lb.	Approx. Net Wt. Lb., Each
89G635	$3.00	280	A	$4\frac{25}{32}$x$2\frac{1}{32}$x$1\frac{1}{4}$	1½	20	16	¾

*Maximum current rating, 3.5 amp. †Loss given at maximum rated current.

G-E Ballasts

For Slimline and 40-Watt Instant-Start Lamps—60 Cycles

Schedule GO-64

No.	Each	Lamp Type	Diam. In.	Nominal Lamp Watts	Circuit Voltage	Line Current Amp.	Open Circuit Voltage	Lamp Current Amp.	Watts Loss	Min. Line Factor per cent	Length—Inches—Over-all	Length—Inches—Mount-ing	Std. Pkg.—Quan-tity	Std. Pkg.—Approx. Ship. Wt. Lb.
‡59G742	**$10.50**	F42T6	......	25	110–125	....	450	.200	13	90	9½	8 57/64	10	66
‡59G743	**12.00**		......	(2) 25	110–125	....	450	.200	21	90	11¾	11 9/64	6	60
‡59G745	**15.75**		......	(2) 32.5	110–125	....	450	.300	32	90	14 5/16	13¾	6	67.5
‡80G363	**8.75**	F48T12 F40T12/1S F40T17/1S	......	38.5	110–125	....	450	.425	20	90	11¾	11 9/64	6	60
89G528	**10.15**		......	(2) 38.5	110–125	....	450	.425	30	90	14 5/16	13¾	6	78
***‡89G400**	**6.85**		......	(2) 38.5	110–125	....	550	.425	22	90	11¾	11 9/64	6	52.5
89G506	**11.00**		......	38.5	220–250	....	440	.425	17	90	11¾	11 9/64	6	61
59G982	**12.50**		......	(2) 38.5	220–250	....	440	.425	28	90	14⅜	13¾	6	73
89G507	**11.00**		......	38.5	240–280	....	440	.425	20	90	11¾	11 9/64	6	61
89G559	**10.65**		......	(2) 38.5	240–280	....	450	.425	28	90	14 5/16	13¾	6	78
‡59G771	**12.25**	§F64T6 F72T8	......	(2) 24.5	110–125	....	600	.120	19	90	11¾	11 9/64	6	52
‡59G382	**11.00**		......	37.5	110–125	....	600	.200	16	90	9½	8 57/64	10	68
‡59G773	**13.00**		......	(2) 37.5	110–125	....	600	.200	25	90	14 5/16	13¾	6	63
‡59G774	**14.25**		......	48.5	110–125	....	600	.300	21	90	11¾	11 9/64	6	54
‡59G775	**16.50**		......	(2) 48.5	110–125	....	600	.300	37	90	19¼	18⅝	4	58
‡89G361	**8.75**	F72T12	......	57	110–125	....	525	.425	25	90	11¾	11 9/64	6	61
‡89G490	**11.80**		......	(2) 57	110–125	....	630	.425	34	90	14 5/16	13¾	6	83
†‡89G496	**8.75**		......	(2) 57	110–125	....	775	.425	28	90	11¾	11 9/64	6	65
***89G398**	**12.50**		......	(2) 57	220–250	....	750	.425	29	90	14 5/16	13¾	6	74
***89G399**	**9.25**		......	(2) 57	240–280	....	750	.425	32	90	14 5/16	13¾	6	76
‡89G532	**12.30**		......	(2) 57	240–280	....	660	.425	34	90	14 5/16	13¾	6	83.5
***89G460**	**12.50**		......	(2) 57	440–480	....	750	.425	30	90	14 5/16	13¾	6	74
‡89G391	**12.50**	F96T8	......	(2) 32	110–125	....	750	.120	21	90	11¾	11 9/64	6	54
‡59G792	**12.00**		......	49	110–125	....	750	.200	20	90	11¾	11 9/64	6	53.5
‡59G793	**13.00**		......	(2) 49	110–125	....	750	.200	32	90	14 5/16	13¾	6	77
‡59G795	**16.50**		......	(2) 65	110–125	....	750	.300	46	90	19¼	18⅝	4	70
‡89G362	**8.75**	F96T12	......	73.5	110–125	....	625	.425	27	90	11¾	11 9/64	6	62
‡89G490	**11.80**		......	(2) 73.5	110–125	....	630	.425	34	90	14 5/16	13¾	6	83
***‡89G496**	**8.75**		......	(2) 73.5	110–125	....	775	.425	28	90	11¾	11 9/64	6	65
89G493	**12.30**		......	73.5	240–280	....	625	.425	25	90	14 5/16	13¾	6	61
‡89G532	**12.30**		......	(2) 73.5	240–280	....	660	.425	34	90	14 5/16	13¾	6	83.5
***‡89G399**	**9.25**		......	(2) 73.5	240–280	....	750	.425	32	90	14 5/16	13¾	6	76
***89G398**	**12.50**		......	(2) 73.5	220–250	....	750	.425	29	90	14 5/16	13¾	6	74
***89G460**	**12.50**		......	(2) 73.5	440–480	....	750	.425	30	90	14 5/16	13¾	6	74

*Series ballast. Not recommended for use in ambient temperatures below 50° F. †Series ballast. Provides reliable starting down to 0°F. with 72T12 lamps. ‡CBM Certified ballasts. §Lamp wattages apply to 72T8.

For Rapid-Start Lamps—All 2 and 3-Lamp Units Operating in Series—60 Cycles

Low Power Factor

No.	Each	Lamp Type	Diam. In.	Nominal Lamp Watts	Circuit Voltage	Line Current Amp.	Open Circuit Voltage	Lamp Current Amp.	Watts Loss	Min. Line Factor per cent	Length—Inches—Over-all	Length—Inches—Mount-ing	Std. Pkg.—Quan-tity	Std. Pkg.—Approx. Ship. Wt. Lb.
89G325	**$2.55**	F40T12/RS	......	40	110–125	.85	...	.425	12	..	6½	6	10	27.5
89G529	**4.30**	F40T12/RS	......	(2) 40	110–125	1.30	...	.425	15	..	8¼	7 3/16	10	40
89G327	**2.50**	‖FC16T10/RS	......	40	110–125	.85	...	.420	12	..	6½	6	10	26.5

High Power Factor

No.	Each	Lamp Type	Diam. In.	Nominal Lamp Watts	Circuit Voltage	Line Current Amp.	Open Circuit Voltage	Lamp Current Amp.	Watts Loss	Min. Line Factor per cent	Length—Inches—Over-all	Length—Inches—Mount-ing	Std. Pkg.—Quan-tity	Std. Pkg.—Approx. Ship. Wt. Lb.
‡89G328	**$5.40**	F40T12/RS	......	40	110–125	.50	...	.425	12	..	10	9 9/16	10	37.5
89G510	**5.90**	F40T12/RS	......	40	240–280	.210	...	.425	12	..	16⅛	15 7/16	10	64
‡89G545	**5.40**	F40T12/RS	......	(2) 40	110–125	.85	...	.425	17	..	9½	8 57/64	20	81
‡89G463	**5.40**	F40T12/RS	......	(2) 40	110–125	.85	...	.425	17	..	9½	8 57/64	12	60.5
89G446	**8.50**	F40T12/RS	......	(2) 40	199–216	.49	...	.425	19	..	9½	8 57/64	10	64
‡89G447	**8.50**	F40T12/RS	......	(2) 40	220–250	.43	...	.425	19	..	9½	8 57/64	12	68
‡89G448	**5.90**	F40T12/RS	......	(2) 40	240–280	.40	...	.425	19	..	9½	8 57/64	12	68
¶89G459	**20.50**	F100T12/RS	......	(2) 100	110–125	2.4	...	1.0	45	..	19¼	18⅝	4	80
****89G726**	**14.00**	F72T12/RS	......	(2) 85	110–125	2.0	...	.800	40	..	14 5/16	13¾	6	85
89G636	**14.00**	F96T12/RS	......	100	110–125	1.20	...	.800	40	..	14 5/16	13¾	6	78
89G726	**14.00**	F96T12/RS	......	(2) 100	110–125	2.0	...	.800	40	..	14 5/16	13¾	6	85
89G556	**17.50**	F96T12/RS	......	(2) 100	240–280	.98	...	.800	45	..	19 3/16	18⅝	4	73
‡89G555	**10.70**	F40T12/RS	......	(3) 40	110–125	1.3	...	.425	22	..	11¾	11 9/64	6	60
‡89G549	**11.20**	F40T12/RS	......	(3) 40	240–280	.550	...	.425	15	..	11¾	11 9/64	6	68

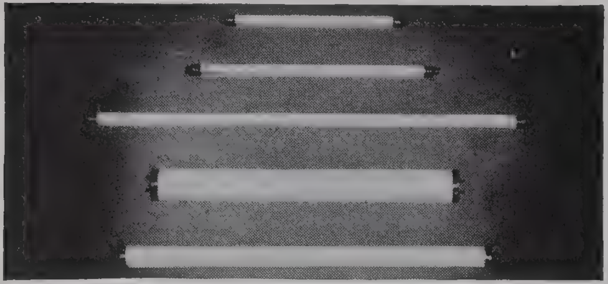
‖Circline. ‡CMB Certified ballast. ¶May be used in ambient temperatures down to —20°F. Not listed by Underwriters'. May be used for single-lamp operation. **Reliable starting down to 0°F.

For Circline Lamps—60 Cycles

No.	Each	Lamp Type	Diam. In.	Nominal Lamp Watts	Circuit Voltage	Line Current Amp.	Open Circuit Voltage	Lamp Current Amp.	Watts Loss	Min. Line Factor per cent	Length—Inches—Over-all	Length—Inches—Mount-ing	Std. Pkg.—Quan-tity	Std. Pkg.—Approx. Ship. Wt. Lb.
89G499	**$.75**	....	8¼	22	110–125	.38	...	.380	6.5	55	3 1/16	2¾	20	13.5
‡‡89G322	**2.35**	....	8¼	22	110–125	.95	...	.390	14.0	50	6½	6	10	28
***89G300**	**1.60**	....	12	32	110–125	.60	...	.435	8.5	50	6½	6	10	25
‡‡89G332	**2.35**	....	12	32	110–125	1.00	...	.435	14.0	40	6½	6	10	28
‡‡89G319	**3.40**	....	8½, 12	22, 32	110–125	1.20	...	.410	13.0	50	8¼	7 13/16	10	38
89G467	**2.30**	....	8¼, 12	22, 32	110–125	1.00	...	.410	10	58	6½	6	10	28
89G327	**2.50**	....	16	40	110–125	.85	...	.420	12.0	50	6½	6	10	26.5
††89G481	**3.75**	....	12, 16	32, 40	110–125	1.35	...	.420	15	50	8¼	7 13/16	10	39
‡‡89G322G10	**2.65**	....	8¼	22	110–125	.95	...	.390	14.0	50	6½	6	10	29
‡‡89G332G10	**2.65**	....	12	32	110–125	1.00	...	.435	14.0	40	6½	6	10	29
‡‡89G319G10	**4.00**	....	8¼, 12	22, 32	110–125	1.20	...	.410	13.0	50	8¼	7 13/16	10	39
89G327G10	**2.85**	....	16	40	110–125	.85	...	.420	12.0	50	6½	6	10	27
††89G481G10	**4.35**	....	12, 16	32, 40	110–125	1.35	...	.420	15	50	8¼	7 13/16	10	40

††No. 89G481 is a combination rapid-start-trigger-start ballast to operate FC16T10/RS and FC12T10 lamps in series.
‡‡Trigger-start ballasts. *Suitable for use in portable lamps.

Westinghouse Fluorescent Lamps



For daylight and colored lighting. Contains no filament. Ultra-violet energy acts on coating inside bulb and is converted into brilliant light, radiating less heat. For use only with equipment providing good power factor. Operate in connection with control units, and special sockets to accommodate pin bases. Prices do not include auxiliaries.

Miniature Bipin Base

Approx. Lamp Watts	Color	Bulb Length Inches	Bulb Size	Bulb Diam. Inches	Lamp Ordering Abbrev.	Std. Pkg. Qty.	Each
6	Std. Cool Wh.	9	T-5	⅝	F6T5/CW	24	**$1.15**
6	White	9	T-5	⅝	F6T5/W	24	**1.15**
6	Daylight	9	T-5	⅝	F6T5/D	24	**1.15**
8	Std. Cool Wh.	12	T-5	⅝	F8T5/CW	24	**1.30**
8	White	12	T-5	⅝	F8T5/W	24	**1.30**
8	Daylight	12	T-5	⅝	F8T5/D	24	**1.30**

Medium Bipin Base

14	Std. Cool Wh.	15	T-12	1½	F14T12/CW	24	**•$.95**
14	Std. Warm Wh.	15	T-12	1½	F14T12/WW	24	**.95**
14	White	15	T-12	1½	F14T12/W	24	**.95**
15	Std. Cool Wh.	18	T-8	1	F15T8/CW	24	**.85**
15	De L. Cool Wh.	18	T-8	1	F15T8/CWX	24	**.95**
15	Std. Warm Wh.	18	T-8	1	F15T8/WW	24	**.85**
15	De L. Warm Wh.	18	T-8	1	F15T8/WWX	24	**.95**
15	White	18	T-8	1	F15T8/W	24	**.85**
15	Daylight	18	T-8	1	F15T8/D	24	**.85**
15	Soft White	18	T-8	1	F15T8/SW	24	**1.00**
15	Std. Cool Wh.	18	T-12	1½	F15T12/CW	24	**.95**
15	De L. Cool Wh.	18	T-12	1½	F15T12/CWX	24	**1.05**
15	Std. Warm Wh.	18	T-12	1½	F15T12/WW	24	**.95**
15	De L. Warm Wh.	18	T-12	1½	F15T12/WWX	24	**1.05**
15	White	18	T-12	1½	F15T12/W	24	**.95**
15	Daylight	18	T-12	1½	F15T12/D	24	**.95**
15	Soft White	18	T-12	1½	F15T12/SW	24	**1.10**
20	Std. Cool Wh.	24	T-12	1½	F20T12/CW	24	**.95**
20	De L. Cool Wh.	24	T-12	1½	F20T12/CWX	24	**1.05**
20	Std. Warm Wh.	24	T-12	1½	F20T12/WW	24	**.95**
20	De L. Warm Wh.	24	T-12	1½	F20T12/WWX	24	**1.05**
20	White	24	T-12	1½	F20T12/W	24	**.95**
20	Daylight	24	T-12	1½	F20T12/D	24	**.95**
20	Soft White	24	T-12	1½	F20T12/SW	24	**1.10**
25	Std. Cool Wh.	33	T-12	1½	F25T12/CW	24	**1.20**
25	De L. Cool Wh.	33	T-12	1½	F25T12/CWX	24	**1.35**
25	Std. Warm Wh.	33	T-12	1½	F25T12/WW	24	**1.20**
25	De L. Warm Wh.	33	T-12	1½	F25T12/WWX	24	**1.35**
25	White	33	T-12	1½	F25T12/W	24	**1.20**
25	Daylight	33	T-12	1½	F25T12/D	24	**1.20**
25	Soft White	33	T-12	1½	F25T12/SW	24	**1.40**
30	Std. Cool Wh.	36	T-8	1	F30T8/CW	24	**1.00**
30	De L. Cool Wh.	36	T-8	1	F30T8/CWX	24	**1.15**
30	Std. Warm Wh.	36	T-8	1	F30T8/WW	24	**1.00**
30	De L. Warm Wh.	36	T-8	1	F30T8/WWX	24	**1.15**
30	White	36	T-8	1	F30T8/W	24	**1.00**
30	Daylight	36	T-8	1	F30T8/D	24	**1.00**
30	Soft White	36	T-8	1	F30T8/SW	24	**1.20**
40	Std. Cool Wh.	48	T-12	1½	F40T12/CW	24	**1.15**
40	De L. Cool Wh.	48	T-12	1½	F40T12/CWX	24	**1.30**
40	Std. Warm Wh.	48	T-12	1½	F40T12/WW	24	**1.15**
40	De L. Warm Wh.	48	T-12	1½	F40T12/WWX	24	**1.30**
40	White	48	T-12	1½	F40T12/W	24	**1.15**
40	Daylight	48	T-12	1½	F40T12/D	24	**1.15**
40	Soft White	48	T-12	1½	F40T12/SW	24	**1.35**
***40**	Std. Cool Wh.	48	T-12	1½	F40T12/CW/IS	24	**1.35**
***40**	De L. Cool Wh.	48	T-12	1½	F40T12/CWX/IS	24	**1.50**
***40**	Std. Warm Wh.	48	T-12	1½	F40T12/WW/IS	24	**1.35**
***40**	De L. Warm Wh.	48	T-12	1½	F40T12/WWX/IS	24	**1.50**

Mogul Bipin Base

***40**	Std. Cool Wh.	60	T-17	2⅛	F40T17/CW/IS	12	**$2.95**
***40**	Std. Warm Wh.	60	T-17	2⅛	F40T17/WW/IS	12	**2.95**
90	Std. Cool Wh.	60	T-17	2⅛	F90T17/CW	12	**2.70**
90	Std. Warm Wh.	60	T-17	2⅛	F90T17/WW	12	**2.70**
90	White	60	T-17	2⅛	F90T17/W	12	**2.70**
90	Daylight	60	T-17	2⅛	F90T17/D	12	**2.70**
90	Soft White	60	T-17	2⅛	F90T17/SW	12	**2.95**

4-Pin Base Circline Lamps

32	Std. Cool Wh.	†12	T-10	1¼	FC12T10/CW	12	**$2.95**
32	Std. Warm Wh.	†12	T-10	1¼	FC12T10/WW	12	**2.95**

All standard cool white listings formerly shown 4500° white. All standard warm white listings formerly shown 3000° white

*For operation on instant start ballasts: base pins are short-circuited and lamp will not operate on preheat ballast circuits. Regular lamps will give short life on instant start ballasts.

†Outside diameter.

Bryant Fluorescent Lamp Starters

BRYANT
STARTER
FS-4
CERTIFIED

No. FS4

BRYANT
STARTER
FS 25
CERTIFIED

No. FS25

BRYANT
STARTER
FS12
CERTIFIED

No. FS12

For Standard Size Lamps

No.	Per 100	No. of Pins	For Lamps Watts	Center	Std. Pkg. No.	Std. Pkg. Wt. Lb.
FS2	**$24.00**	2	15 and 20	10	100	3
FS4	**24.00**	2	30 and 40	10	100	3
FS25	**28.00**	2	25	10	100	3

For Mogul Size Lamps

FS85	**$85.00**	2	100	10	50	3
FS85–4	**85.00**	4	100	10	50	3

No. FS5 for Midget Size Lamps

FS5	**$42.00**	2	4, 6, 8	10	50	2

No. FS12 for 12-Inch Circline Lamps

FS12	**$25.00**	2	......	10	100	2

Bryant No-Blink Starters

Manual Reset

Listed by Underwriters' Laboratories

Prevents annoying blinking and flickering of lamps which have reached the end of their normal life.

Packed 10 in a carton, 100 in a standard package.

REMOVE
BRYANT
STARTER
FS-40
NO BLINK
MANUAL RESET

FS40

For 15 and 20-Watt Lamps

No.	Per 100	Description	Wt. Lb. Std. Pkg.
FS20	**$80.00**	2 Pin....................	3
		For 30-Watt Lamps	
FS30	**$88.00**	2 Pin....................	3
		For 40-Watt Lamps	
FS40	**$72.00**	2 Pin....................	3
		For 100-Watt Lamps	
FS850	**$100.00**	4 Pin....................	5

Automatic-Reset

Prevents annoying blinking and flickering of lamps when they have reached end of normal life.

BRYANT
STARTER
FS-4NA
NO BLINK
AUTO RESET

No. FS4NA

No.	Per 100	No. of Pins	For Lamps Watts	Center	Std. Pkg. No.	Std. Pkg. Wt. Lb.
FS4-NA	**$72.00**	2	40	10	100	3
FS85NA	**100.00**	2	100	10	50	4
FS85NA4	**100.00**	4	100	10	50	3

MATERIAL NOT LISTED

We can furnish many items not listed in this catalog.

Please send us all your inquiries.

Westinghouse Slimline Fluorescent Lamps

Single Pin Base

Longer and more slender than standard fluorescent lamps.

For multiple operation, and should be used only with auxiliary equipment designed to produce proper electrical values. High efficiency hot cathode type, for instant operation without starters only. Suitable at various levels of output and brightness. Compact cathode and base structure provides maximum continuity when mounted end to end.

May be burned in any position.

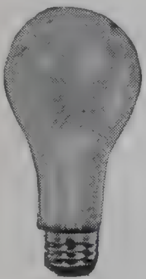
Initial lumens and lumens per watt for fluorescent lamps are available.

‡Nominal Wattage at 120 ma.	200 ma.	300 ma.	¶Color	Lamp Ordering Abbr.	Bulb Lgth. In.	Size	Diam. In.	Std. Pkg. Qty.	Each
18	25	*33	Std. Cool White	F42T6/CW	42	§T-6	¾	24	$2.10
			Std. Warm White	F42T6/WW					
27	39	*51	Std. Cool White	F64T6/CW	64	§T-6	¾	24	2.35
			Std. Warm White	F64T6/WW					
26	38	*51	Std. Cool White	F72T8/CW	72	§T-8	1	24	2.45
			Std. Warm White	F72T8/WW					
34	50	69	Std. Cool White	F96T8/CW	96	§T-8	1	24	3.05
			Std. Warm White	F96T8/WW					
..	*38	..	Std. Cool White	F48T12/CW	48	‖T-12	1½	24	1.75
			Std. Warm White	F48T12/WW					
..	†55	..	Std. Cool White	F72T12/CW	72	‖T-12	1½	12	2.80
			Std. Warm White	F72T12/WW					
..	†75	..	Std. Cool White	F96T12/CW	96	‖T-12	1½	12	3.50
			De Luxe Cool White	F96T12/CWX					3.75
			Std. Warm White	F96T12/WW					3.50
			De Luxe Warm White	F96T12/WWX					3.75

*Wattage at 420 ma. †Wattage at 425 ma. ‡For total, add auxiliary watts. §Rated average lamp life 6000 hours on a 3 hour per start burning cycle. ‖Rated average lamp life 7500 hours on a 3 hour per start burning cycle. ¶Lamp color is centered at 200 ma.

Westinghouse Standard Lamps

Inside Frosted



100-Watt

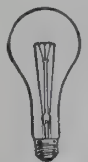
Medium Base

115, 120, and 125 Volts

No. of Watts	Each	Bulb	Length Overall Inches	Lamp Ordering Abbrev.	Std. Pkg.
15	$.18	A-15	3½	15A15	120
25	.19	A-19	3 15/16	25A	120
40	.19	A-19	4¼	40A	120
50	.19	A-19	4 7/16	50A	120
60	.19	A-19	4 7/16	60A	120
75	.19	A-19	4 7/16	75A	120
100	.22	A-21	5 5/16	100A	120
150	.27	PS-25	6 15/16	150	60
150	.25	A-23	6 1/16	150A	60

General Lighting Service

115, 120 and 125 Volts



Clear

Operates in any position, but lumen maintenance is best when burned vertically base up.

Medium Base

No. of Watts	Inside Frosted Each	Lamp Ordering Abbrev.	Clear Each	Bulb	Lamp Ordering Abbrev.	Std. Pkg. Qty.
150	$.27	150	$.29	PS-25	150/CL	60
200	.36	200/1F	.36	PS-30	200	60
300	.44	300M/1F	.44	PS-30	300M	60
Mogul Base						
300	$.65	300/1F	$.60	PS-35	300	24
500	.95	500/1F	.90	PS-40	500	24
750	2.75	750/1F	2.60	PS-52	750	6
1000	2.95	1000/1F	2.80	PS-52	1000	6
1500	4.40	1500/1F	4.25	PS-52	1500	6

Westinghouse Lamps

Inside Frosted

Medium Base—115, 120 and 125 Volts

For Rough Service

For use where subjected to severe shock and bumps such as with extension cords in garages and similar applications. Not suitable to withstand vibration.

No. of Watts	50	100
Each	$.32	.39
Bulb	A-19	A-21
Lamp Order. Abbrev.	50A/RS	100A/RS
Std. Pkg. Qty	120	120

For Vibration Service

For use where vibration prevails. Not recommended for horizontal burning.

No. of Watts	50	100
Each	$.23	.50
Bulb	A-19	A-23
Lamp Order. Abbrev.	50A/VS	100A23/28
Std. Pkg. Qty	120	120

Westinghouse High Voltage Lamps

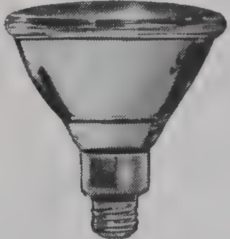
230 and 250 Volts

Medium Base—Inside Frosted

Watts	Each	Bulb	Lamp Order Abbr. (Ex. Volts)	Approximate Lumens	Std. Pkg. Qty.
25	$.27	A-19	25A	215	120
50	.27	A-19	50A	480	120
*100	.31	A-23	100A	1250	120
*200	.53	PS-30	200/IF	2980	60
Medium Base—Clear					
*200	$.53	PS-30	200	2980	60
Mogul Base—Clear					
*300	$.85	PS-35	300	4620	24
*500	1.30	PS-40	500	8800	24
*750	3.20	PS-52	750	14100	6
*1000	3.35	PS-52	1000	19700	6

*Operates in any position; lumen maintenance best when burned vertically base up.

Westinghouse Projector Lamps



Medium Skirted Base
115, 120, and 125 Volts

Suitable for both outdoor and indoor service.

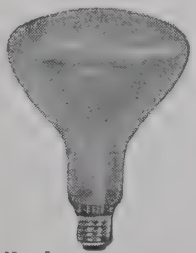
Will fill the need for supplementary lighting in stores, factories, offices, and schools.

Can also be used to spotlight signs and displays.

No. of Watts	Bulb	Service	Lamp Order. Abbrev.	Std. Pkg.	Each
*75	PAR-38	Spotlight	75 PAR/SP	12	$1.85
*75	PAR-38	Floodlight	75 PAR/FL	12	1.85
150	PAR-38	Spotlight	150 PAR/SP	12	1.85
150	PAR-38	Floodlight	150 PAR/FL	12	1.85

*Designed for voltage range shown. Not available for individual voltages.

Westinghouse Reflector Lamps



Inside Frosted

Medium Base
115, 120, and 125 Volts

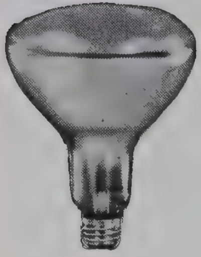
Recommended for indoor use because the bulb must be protected from the weather.

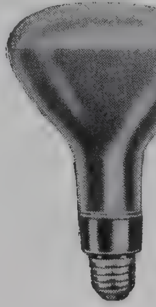
Both the spot and flood provide good light for all types of indoor applications.

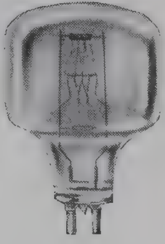
No. of Watts	Bulb	Service	Lamp Ordering Abbrev.	Std. Pkg. Qty.	Each
75	R-30	Spotlight	75R30/SP	60	$1.10
75	R-30	Floodlight	75R30/FL	60	1.10
150	R-40	Spotlight	150R/SP	24	1.10
150	R-40	Floodlight	150R/FL	24	1.10
300	R-40	Spotlight	300R/SP	24	1.65
300	R-40	Floodlight	300R7FL	24	1.65

Westinghouse Infrared Lamps

110–125 Volts


Medium


R-40
Medium Skirt


T-40
Med. Bipost

These lamps utilize infrared rays to speed up drying and heat-treating processes. Burn in any position.

Industrial Service

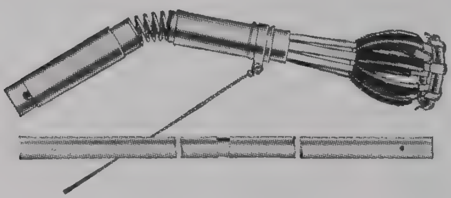
No. of Watts	Bulb	Base	Lamp Ordering Abbrev.	Diam. Bulb Inches	Std. Pkg. Qty.	Each
125	R-40	Medium Skirt	125R40	5	24	**$1.30**
125	G-30	Medium Skirt	125G30	3¾	60	**.85**
250	G-30	Medium Skirt	250G630	3¾	60	**.95**
250	R-40	Medium Skirt	250R40/4	5	24	**1.35**
375	R-40	Medium Skirt	375R40	5	24	**1.50**
375	G-30	Medium Skirt	375R40	3¾	60	**1.25**
500	G-30	Medium Skirt	500G30/1	3¾	60	**1.35**
1000	T-40	Medium Bipost	1M/T40/3	5	12	**9.50**

Domestic Service

No. of Watts	Bulb	Base	Lamp Ordering Abbrev.	Diam. Bulb Inches	Std. Pkg. Qty.	Each
250	R-40	Medium	250R40/1	5	24	**$1.10**
250	*R-40	Medium	250R40/HR	5	12	**2.95**

*Heat resisting glass bulb, red bowl.

McGill Adaptable Lamp Changers



Coil spring around ends of rubber-covered fingers grips bulb firmly for removal. Angle adjustment on Nos. 150-CA and 151-CA permits tilting of head for bulbs in horizontal position. Opposite ends of No. 160-P telescope and lock to complete length. Changers and poles insulated.

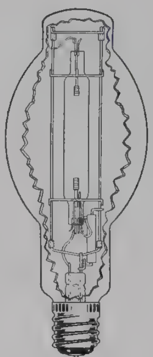
Coil Spring with Angle Adjustment				Coil Spring No Angle Adjustment			
No.	Each	Lamp Watts	Wt. Oz.	No.	Each	Lamp Watts	Wt. Oz.
150-CA	**$5.50**	15– 75	8	**152**-C	**$6.00**	300–500......	10
151-CA	**5.50**	100–200	9	**153**-C	**6.50**	750–1500.....	10
....	....	....	..	**154**-C	**6.50**	400 Merc.....	8
....	....	....	..	**156**-C	**6.00**	PAR-38, R-40	12

No. **160**-P, Steel Interchangeable Pole, 5 Ft. Section; Weight, 24 Ounces....................each **$4.10**

MANUFACTURERS' CATALOGS

We shall be glad to send MANUFACTURERS' CATALOGS and OTHER AVAILABLE PUBLICATIONS AND DATA on request.

Westinghouse Fluorescent-Mercury and Mercury Lamps

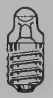


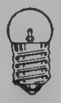
Current limiting device required, either in the form of a transformer or reactor. Burns in any position. Clear finish.

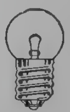
Watts	Bulb (Clear)	Base	Lamp Order No.	Approximate Lumens	Std. Pkg. Qty.	Each
250	BT-28	Mogul	C-H5	11,000	6	**$17.25**
400	BT-37	Mogul	E-H1	20,000	6	**18.40**
***400**	BT-37(1F)	Mogul	J-H1	18,000	6	**22.40**
1000	BT-59	Mogul	A-H12	55,000	6	**54.00**
***1000**	BT-56(1F)	Mogul	C-H12	50,000	6	**59.50**
3000	T-9½	S.C. Term	A-H9	120,000	1	**51.00**

*Fluorescent-Mercury lamps.

Miniature Lamps


No. 112, 222


Nos. 233, 13, 14


No. 502

Unit package quantity, 10 lamps of the same lamp number.

For Flashlights, Handlanterns, Bicycles and Miscellaneous Service

Miniature Screw Base

Lamp No.	Each	Bulb	Volts	Amp.	No. and Size Cells
112	**$.13**	TL-3	1.20	0.22	1—AA
123	**.12**	G-3½	1.25	0.30	1—D
131	**.12**	G-3½	1.30	0.10	1—D
224	**.14**	*TL-2¾	2.15	0.22	2—AAA
222	**.13**	TL-3	2.25	0.25	2—AA
223	**.12**	FE-3¾	2.25	0.25	2—AA
233	**.12**	G-3½	2.33	0.27	2—C
14	**.12**	G-3½	2.47	0.30	2—D
13	**.12**	G-3½	3.70	0.30	3—D
27	**.15**	G-4½	4.90	0.30	4—F
502	**.13**	G-4½	5.10	0.15	4—F
965	**.18**	T-4½	9.84	0.50	8—D

Single Contact Miniature Flange Base

Lamp No.	Each	Bulb	Volts	Amp.	No. and Size Cells
PR4	**$.17**	B-3½	2.33	0.27	2—C
PR2	**.17**	B-3½	2.38	0.50	2—D
PR6	**.17**	B-3½	2.47	0.30	2—D
PR3	**.17**	B-3½	3.57	0.50	3—D
PR7	**.17**	B-3½	3.70	0.30	3—D
PR12	**.17**	B-3½	5.95	0.50	5—D

For Radio Panel, Indicators, and Miscellaneous Service

Lamp No.	Each	Bulb	Volts	Amp.	Base
41	**$.12**	T-3¼	2.5	0.50	Min. Screw
40	**.12**	T-3¼	6–8	0.15	Min. Screw
46	**.12**	T-3¼	6–8	0.25	Min. Screw
50	**.12**	G-3½	6–8	0.22	Min. Screw
1490	**.12**	T-3¼	3.2	0.16	Min. Bay.
47	**.12**	T-3¼	6–8	0.15	Min. Bay.
44	**.12**	T-3¼	6–8	0.25	Min. Bay.
1458	**.15**	G-5	20	0.25	Min. Bay.

For Toy Train Service

Lamp No.	Each	Bulb	Volts	Amp.	Base
1449	**$.15**	G-3½	14	0.20	Min. Screw
430	**.13**	G-4½	14	0.25	Min. Screw
1447	**.19**	G-3½	18	0.15	Min. Screw
432	**.14**	G-4½	18	0.25	Min. Screw
363	**.15**	G-3½	14	0.20	Min. Bay.
431	**.13**	G-4½	14	0.25	Min. Bay.
1445	**.19**	G-3½	18	0.15	Min. Bay.
433	**.14**	G-4½	18	0.25	Min. Bay.

Cell Designation.......	AA	AAA	C	D	F	No. **6**
Diameter........inches	½	0.4	1⁵⁄₁₆	1¼	1¼	2½
Height..........inches	1⅞	1¾	1¹³⁄₁₆	2¼	3⁷⁄₁₆	6

*Special Base.

No. 166 Big Beam Portable Electric Hand Lamps

For motorists, home owners, sportsmen and farmers. Prefocused. Powered by one standard 6-volt lantern battery. Polished, chrome-plated handle gives rigid support for lamphead. Lamphead is 4 inches in diameter; 24-gage, deep-drawn steel, chrome plated. Head is adjustable within 95° in a vertical plane. Battery case is 20-gage, deep-drawn steel with hinged cover and snap catch. Rustproof and weatherproof, finished in red baked enamel.

Packaged: individual cartons—6 or 12 cartons in a standard shipping case. Weight, complete with battery, 55 ounces. When ordering specify with or without battery.

No. **166**, less Battery..........................each **$7.50**

No. 1717S Justrite Safety Service Flashlights

3-Cell

Listed by Underwriters' Laboratories

Approved by Underwriters' Laboratories, U.S. Bureau of Mines, Bureau of Marine Inspection.

Uses 3 regular flashlight cells.

Case is made of ethylcellulose reinforced with metal. High visibility yellow color.

Stands on base.

Furnished with neoprene rubber lens holder and a 2½-inch polished reflector.

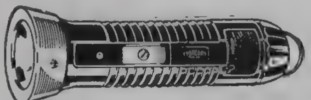
Height, 5¾ inches.

Weight, ½ pound.

No. **1717S**, with Clear Lens, less Batteries......each **$5.00**

Eveready Safety Flashlights

Listed by Underwriters' Laboratories



Approved by the United States Bureau of Mines and Underwriters' Laboratories for use in explosive gaseous atmospheres.

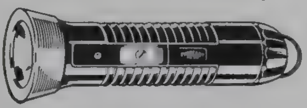
Spring-loaded contact within reflector assembly designed to instantly open electrical circuit if bulb is broken, before the filament can ignite inflammable or explosive mixtures of gas in the surrounding atmosphere.

Case made of ethyl cellulose with unbreakable polyethylene red safety-glow lens-guard, hand-replaceable insulated slide switch, and ring hanger. Extra lamp in bottom cap.

Use Eveready D-size batteries.

No. **1259A**, 2-Cell Type, without Batteries......each **$4.15**
No. **1359A**, 3-Cell Type, without Batteries......each **4.35**

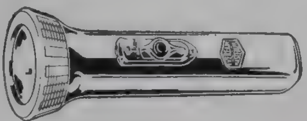
No. 1251A Eveready Heavy-Duty Flashlights



For industrial applications. Case of insulated ethyl cellulose. Withstands deterioration from water, oils, acids, etc. Hand-replaceable insulated slide switch. Unbreakable polyethylene safety-glow lens-guard. Ring hanger. Uses two D-size batteries and a No. PR6 Eveready lamp.

No. **1251A**, Without Batteries..................each **$2.50**

No. 7231P Eveready Small Square Spotlights



2-Cell

Red safety-glow lens guard made of unbreakable polyethylene. All-chrome finish.

Packed 1 in a box.

No. **7231P**, less Batteries......................each **$1.85**

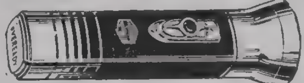
No. 2251 Eveready Automatic Spotlights

2-Cell

Automatic spotlight. Chromium finish with rolled-on black decoration. Size, 6¾x1¾ inches. Uses two Eveready No. 950 batteries and Eveready lamp No. PR-2.

No. **2251**, without Batteries....................each **$1.85**

No. 7251 Eveready Square Masterlite Flashlights



2-Cell

Rolled-on black decoration, trimmed in chromium. Uses two Eveready No. 950 batteries and Eveready lamp No. PR2.

Packed 6 in a display package.

No. **7251**, less Batteries.......................each **$1.95**

Eveready Flashlight Batteries

Unit Cells

EVEREADY
TRADE-MARKS
"NINE LIVES"
LEAKPROOF BATTERY

No. 950

Unit package, for No. 950, 48 per package.

For Nos. 912, 915 and 935, 12 per package.

No.	Each	Description	Size In.	Cell Size	Weight Oz.
912	**$.125**	Penlite Cell.	1¾ x.4	AAA	0.3
915	**.125**	Penlite Cell.	$1\frac{31}{32}$x$\frac{35}{64}$	AA	⅗
935	**.15**	Baby Tubular	2 x$1\frac{1}{64}$	C	1⅖
950	**.15**	Regular.....	$2\frac{13}{32}$x$1\frac{21}{64}$	D	3

No. D-99 Eveready Flashlight Batteries

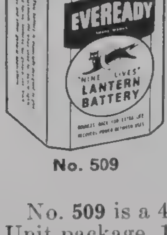
EVEREADY
LEAKPROOF BATTERY

For heavy duty service by watchmen, mechanics, police, etc. Durable plastic jacket, rolled and crimpsealed at top and bottom. Leakproof. No. of D cells, 1. Diam., $1\frac{11}{32}$ in.; ht., $2\frac{13}{32}$ in. Packed 48 in a pkg. Wt. per pkg., 10 lb.

No. D-99.........................each **$.20**

Eveready Flashlight Batteries

Flat



No. 509

No. **703** is 3-cell, large pocket size, $2\frac{7}{16}$x$\frac{27}{32}$x$2\frac{19}{32}$ inches.

Unit package, 1.

*No. **703**......................each **$.60**

No. **750** is 2-cell, medium vest pocket size, $1\frac{11}{32}$x$\frac{11}{16}$x$2\frac{5}{16}$ inches.

Unit package, 10.

*No. **750**......................each **$.50**

No. **751** is 3-cell, medium vest pocket size, $2\frac{11}{16}$x$2\frac{5}{16}$ inches.

Unit package, 10.

*No. **751**......................each **$.60**

No. **509** is a 4 cell lantern battery, $3\frac{27}{32}$x$2\frac{5}{8}$x$2\frac{5}{8}$ inches. Unit package, 12.

No. **509**.......................................each **$.90**

*Available upon special order.

No. 1461 Eveready Hot Shot Batteries

EVEREADY
NINE LIVES
HOT SHOT
MULTIPLE BATTERY

A 4-cell battery for general utility. Available with screw terminals and steel case only. Length, 10⅜ inches. Width 2¾ inches. Height, 7¼ inches. Volts, 6.

Standard package, 6 batteries.

Weight per package, 58¼ pounds.

No. **1461**..each **$3.75**

No. 4FH Burgess Ignition Batteries

1½ Volts

BURGESS
4FH
LITTLE-SIX
GENERAL UTILITY
BATTERY

For general ignition, telephone, electronic devices, radio and broadcasting equipment.

High working voltage ideal for industrial applications.

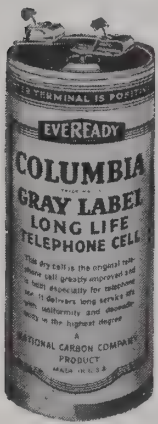
Size, 2⅝x2⅝x4 inches.

Weight, 1⅓ pounds.

Unit package, 12; weight, 16 pounds.

No. 4FH..each **$.90**

No. 6 Eveready Columbia Gray Label Telephone Dry Cells


EVEREADY
COLUMBIA
GRAY LABEL
LONG LIFE
TELEPHONE CELL
NATIONAL CARBON COMPANY

This battery is especially designed for telephone work and similar service.

Round jackets only.

Fahnestock spring terminals are furnished unless screw connections are specified.

Voltage, 1½.

Diameter, 2⅝ inches.

Height, 6⅝ inches.

Quantity is std. pkg., 12. Approx. wt. of standard package, 26¼ pounds.

No. **6**..............................each **$.85**

No. 6 Eveready Special Railroad and Industrial Cells

No. 6
EVEREADY
Special
RAILROAD
INDUSTRIAL CELL
LONG LIFE
IN ALL CLASSES OF SERVICE
NATIONAL CARBON COMPANY

Combines high amperage, heavy service life and light service life. Designed for railroad and industrial use where a wide range of service conditions from extremely heavy to extremely light are encountered.

Round jackets only. Screw connections unless Fahnestock Spring Terminals are specified.

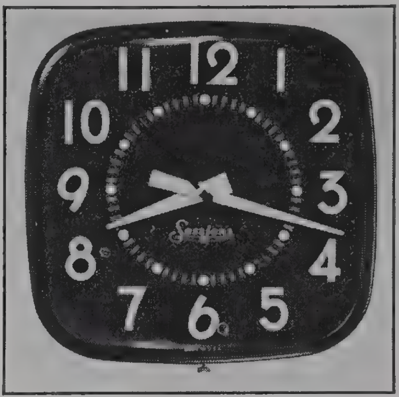
Voltage, 1½; overall diameter, 2⅝ inches; overall height, 6⅝ inches.

Packed 12 in a standard package.

Approximate weight of standard package, 27½ pounds.

Each.................................... **$.95**

No. RB21 Sessions Square Chairman Clocks



White 12½-inch square case with tapered corners on brown plastic.

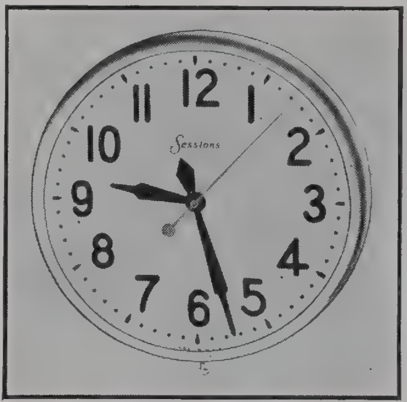
White numerals and hands.

Convenient bottom hand set.

Shipping weight, 3 pounds.

No. RB**21**.......each **$12.95**

No. RB88 Sessions Round Office Clocks



White dial, black numerals and hands.

Chrome-plated case.

Convenient bottom hand set.

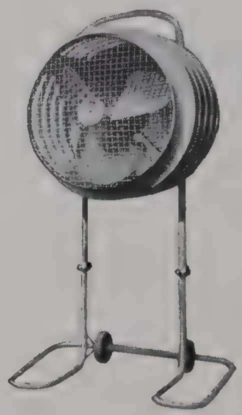
Diameter, 13½ inches.

Shipping weight, 3 pounds.

No. RB**88**.......each **$14.95**

No. MA-4020 Westinghouse Mobilaire Fans

115 Volts, 60 Cycles A.C.



Completely portable, roll-around, large area, draftless circulator for night or day cooling. No hum, vibration, radio or television interference. Changes the air in 4 or 5 rooms every minute.

Deep pitched blades, two speed motor, Air-Injector Ring assembly and mesh grille.

Blade diameter, 17 inches. Input, 250 watts. Air delivery; exhaust, (H) 4000 cfm., (L) 2800 cfm.; circulating, (H) 4000 cfm., (L) 2800 cfm. Noise level decibels, (H) 62, (L) 48.

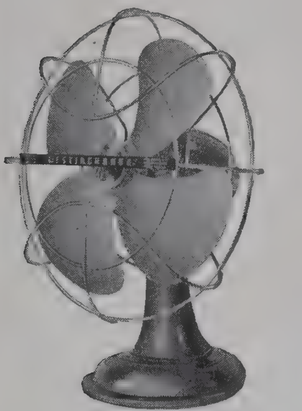
Overall dimensions: At maximum height, 58½ inches; at minimum height, 36¼ inches. Center of fan adjustable from 46¼ to 24 inches above floor. Width, 20 inches. Depth, 16½ inches.

Approximate shipping weight, 45 pounds.

No. MA-**4020**..................................each **$79.95**

Westinghouse Oscillating Desk-Bracket Fans

115 Volts, 60 Cycles, A.C.



No. 10LA4

Streamlined for super air flow. With induction type motor. No radio or television interference. Oscillating mechanism and motor fully enclosed. Adjustable for wall mounting.

Baked on enamel finish.

Livelyaire Models

With Hemcolite S-R blades.

Oscillating arc adjustable 0–70°.

No. 10LA4. Single speed. Height, 14 inches; width, 11¼ inches; depth, 8¼ inches. Base: width, 5⅜ inches; depth, 7⅜ inches.

No. 12LA4. Two-speed. Height, 16 inches; width, 13½ inches; depth, 10½ inches. Base: width, 6½ inches; depth, 8½ inches.

No. 16SD3 Standard Model

Three-speed. Has deep-pitched, ultra-quiet, supersafe blades. Oscillating arc, 75°. With automatic clutch. Height, 21 inches. Width, 18 inches. Depth, 12¾ inches. Base: width, 7⅞ inches; depth, 10⅜ inches.

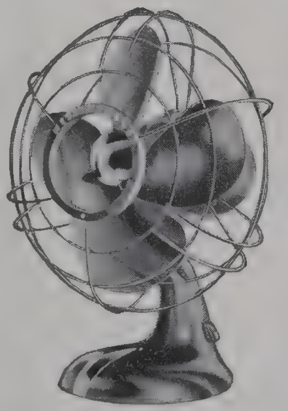
Specifications

No.	Each	Size Blade In.	Speed RPM.	*Air Delivery CFM.	*Max. Air Velocity FPM.	Watts	Approx. Ship. Wt. Lb.
10LA4	$15.95	10	1700	600	860	50	7
12LA4	26.95	12	(H) 1460 (L) 1060	(H) 900 (L) 650	950	52	11
16SD3	44.95	16	(H) 1480 (M) 1210 (L) 1025	(H) 1600 (M) 1300 (L) 1100	1350	95	20

Watts, rpm., air delivery and air velocity may vary 10 per cent from values shown. *N.E.M.A. standard.

Westinghouse Poweraire Oscillating Desk-Bracket Fans

115 Volts, 60 Cycles, A.C.



No. 10PA2

For home or office.

With induction type motor. No radio or television interference. Oscillating mechanism and motor fully enclosed. Adjustable for wall mounting.

No. 10PA2. Two-speed. Oscillation arc, 75°. Height, 14½ in.; width, 11¼ in.; depth, 9⅝ in. Base: width, 4¼ in.; depth, 7½ in.

No. 12PA2. Three-speed. Oscillation arc, 75° or 45°; adjustable oscillation center. Height, 17½ in.; width, 13½ in.; depth, 11 in. Base: width, 6⅜ in.; depth, 9 in.

No. 16PA2. Three-speed. Oscillation arc, 75° or 45°; adjustable oscillation center. Height, 21 in.; width, 18 in.; depth, 11¾ in. Base: width, 7⅝ in.; depth, 10½ in.

Crystal-gray, baked on enamel finish.

Specifications

No.	Each	Size Blade In.	Speed RPM.	*Air Delivery CFM.	*Max. Air Velocity FPM.	Watts	Approx. Ship. Wt. Lb.
10PA2	$26.95	10	(H) 1400 (L) 1060	(H) 900 (L) 700	1050	52	10
12PA2	44.95	12	(H) 1550 (M) 1300 (L) 1075	(H) 1200 (M) 1000 (L) 800	1240	85	19
16PA2	54.95	16	(H) 1050 (M) 850 (L) 700	(H) 1700 (M) 1400 (L) 1100	1300	75	24

Watts, rpm., air delivery and air velocity may vary 10 per cent from values shown. *N.E.M.A. standard.

No. PL-1654 Hunter 16-Inch Pedestal Oscillating Fans

115 Volts, 60 Cycles, A.C.

Listed by Underwriters' Laboratories

Totally enclosed adjustable oscillating mechanism.

Adjustable from 38 to 62 inches in height.

With 3-speed shaded-pole motor.

Motor speed, 1050 rpm.; 75 watts.

Air delivery, 1500 cfm. under N.E.M.A. test method.

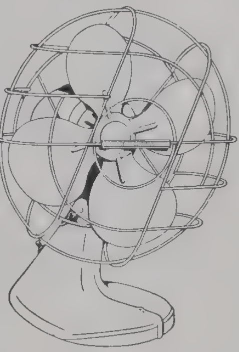
Baked enamel finish.

Shipping weight, 32½ pounds.

No. **PL-1654** ....each **$63.30**

Hunter Standard Oscillating Fans

A.C.—For 115 Volts, 60 Cycles



Dependable, economical performance. Attractively designed guard complements smooth styling.

Silver blue lacquer finish.

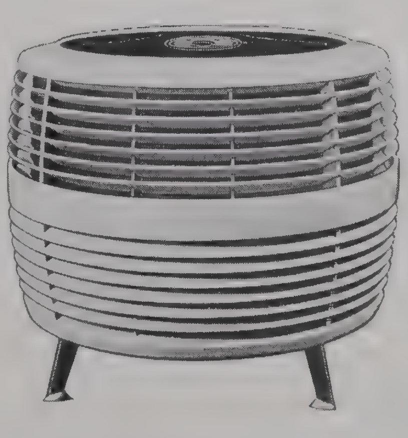
When ordering, give catalog No. or blade size.

No.	Each	Blade Size In.	Speeds	RPM. High	Watts	NEMA CFM.	Ship. Wt. Lb.
36004A	$17.50	10	1	1485	45	670	7
37004A	26.25	12	2	1490	53	820	9

No. F-1255 Hunter Hassock Fans

12-Inch Blade—Three Speeds

A.C.—115 Volts, 60 Cycles; 100 Watts



Full 360° air circulation, for home or office.

Usable as a seat or low table.

Circulates air under desk or table and raises cooler air near floor up to body level.

Quiet and safe. Styrene guards completely enclose fan.

Rubber-mounted capacitor type motor. Capacity, 3500 cfm. Speed, 1550 rpm.

Steel top and legs.

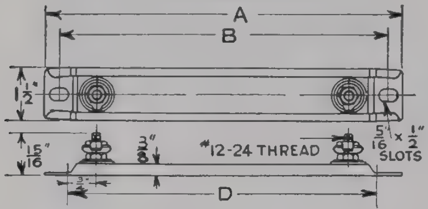
Shipping weight, 33 pounds.

No. **F-1255**..............................each **$54.95**

Type S Chromalox Electric Strip Heaters

1½-Inch Width; with Bolt Terminal at Each End

For 115 or 230 Volts



Nickel chromium alloy resistor is embedded in a special refactory which is compacted to maximum density under hydraulic pressures.

Maximum Sheath Temperature 750° F.

(Sheath of Rust-Resisting Iron)

No.	Each	A Overall Length	B Mtg. Hole Center	D Without Mtg. Tabs	Watts	*Watt Density w/Sq. In.	Wt. Lb.
		Dimensions, Inches					
S-815	$3.00	8	7	6½	150	10	⅝
S-920	3.15	9½	8½	8	200	10	¾
S-1225	3.20	12	11	10½	250	8	15/16
S-1430	3.40	14	13	12½	300	8	1 1/16
S-1532	3.50	15¼	14¼	13¾	325	8	1 3/16
S-1837	3.55	17⅞	16⅞	16⅜	375	7	1 7/16
S-1850	3.55	17⅞	16⅞	16⅜	500	10	1 7/16
S-1950	3.60	19½	18½	18	500	9	1½
S-2050	3.65	21	20	19½	500	8	1¾
S-2425	3.75	23¾	22¾	22¼	250	3	1⅞
†S-2450	3.75	23¾	22¾	22¼	500	7	1⅞
S-2575	4.10	25½	24½	24	750	9	1 13/16
S-2670	4.15	26¾	25¾	25¼	700	8	2⅛
S-3075	4.75	30½	29⅜	28	750	8	2⅜
S-3375	5.15	33½	32⅜	31	750	7	2⅝
S-3610	5.45	35⅞	34¾	33⅜	1000	9	2⅞
S-3810	5.95	38½	37⅜	36	1000	8	3
S-4312	6.55	42½	41⅜	40	1250	9	3⅜

Maximum Sheath Temperature 1200°F.

(Sheath of Heat-Resisting Chrome Steel)

No.	Each	A Overall Length	B Mtg. Hole Center	D Without Mtg. Tabs	Watts	*Watt Density w/Sq. In.	Wt. Lb.
S- 802	$4.40	8	7	6½	250	17	⅝
S- 903	4.60	9½	8½	8	300	15	¾
S-1202	4.90	12	11	10½	250	8	15/16
S-1205	4.90	12	11	10½	500	17	15/16
S-1405	5.15	14	13	12½	500	14	1 1/16
S-1505	5.20	15¼	14½	13¾	500	12	1 3/16
S-1805	5.55	17⅞	16⅞	16⅜	500	10	1 7/16
S-1807	5.60	17⅞	16⅞	16⅜	750	15	1 7/16
S-1801	5.65	17⅞	16⅞	16⅜	1000	19	1 7/16
S-1905	5.65	19½	18½	18	500	9	1½
S-1907	5.95	19½	18½	18	750	13	1 9/16
S-1901	5.95	19½	18½	18	1000	18	1 9/16
S-2005	5.95	21	20	19½	500	8	1¾
S-2405	6.15	23¾	22¾	22¼	500	7	1⅞
S-2407	6.15	23¾	22¾	22¼	750	10	1⅞
S-2401	6.50	23¾	22¾	22¼	1000	14	1⅞
S-2415	6.50	23¾	22¾	22¼	1500	21	1⅞
S-2501	6.60	25½	24½	24	1000	13	1 13/16
S-2607	6.70	26¾	25¾	25¼	750	9	2⅛
S-3007	7.30	30½	29⅜	28	750	8	2⅜
S-3301	8.00	33½	32⅜	31	1000	9	2⅝
S-3601	8.50	35⅞	34¾	33⅜	1000	9	2⅞
S-3801	8.80	38½	37⅜	36	1000	8	3
S-4301	9.60	42½	41⅜	40	1500	11	3⅜

*Watts per square inch of effective heated surface area.

†Also furnished in 250 volts.

Two 230-volt heaters of equal wattage can be connected in series on 460 volts.

Where line voltage is above 460 volts, strip heaters can be connected in series provided they are mounted on secondary insulating bushings.

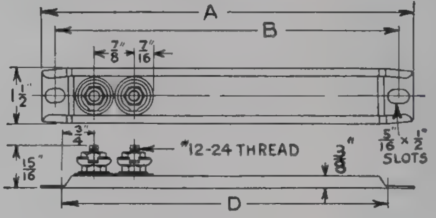
Special Features. Without mounting tabs, no additional charge. Special rating (specify voltage and wattage—within practical limits) add 10 per cent; minimum total extra $5.00. Monel sheath, add 20 per cent to chrome steel list prices; minimum quantity of 5 heaters required. Secondary insulating bushings, per heater, add $.95.

When ordering, specify quantity, number, volts, watts, strip heater element plus special features if required.

Type SE Chromalox Electric Strip Heaters

With 2 Bolt Terminals at One End

For 115 and 230 Volts



Dimensions

Size In.	A	B	D	Size In.	A	B	D
	Dimen., Inches				Dimen., Inches		
8	8	7	6½	**25½**	25½	24½	24
12	12	11	10½	**26¾**	26¾	25¾	25¼
14	14	13	12½	**30½**	30½	29⅜	28
15¼	15¼	14¼	13¾	**33½**	33½	32⅜	31
18	17⅞	16⅞	16⅜	**36**	35⅞	34¾	33⅜
19½	19½	18½	18	**38½**	38½	37⅜	36
21	21	20	19½	**43**	42½	41⅜	40
24	23¾	22¾	22¼	....	....	....	...

Dimension D indicates overall length of heaters without mounting tabs.

Maximum Sheath Temperature 750°F.

(Sheath of Rust-Resisting Iron)

No.	Each	With Mtg. Tabs	Without Mtg. Tabs	Watts
		Overall Length, In.		
SE-815	$3.00	8	6½	150
SE-1225	3.20	12	10½	250
SE-1430	3.40	14	12½	300
SE-1532	3.50	15¼	13¾	325
SE-1850	3.55	17⅞	16⅜	500
SE-1950	3.60	19½	18	500
SE-2050	3.65	21	19½	500
SE-2450	3.75	23¾	22¼	500
SE-2475	3.95	23¾	22¼	750
SE-2575	4.10	25½	24	750
SE-2670	4.15	26¾	25¼	700
SE-3075	4.75	30½	28	750
SE-3375	5.15	33½	31	750
SE-3610	5.45	35⅞	33⅜	1000
SE-3880	5.85	38½	36	800
SE-4312	6.55	42½	40	1250

Maximum Sheath Temperature 1200°F.

(Sheath of Heat-Resisting Chrome Steel)

No.	Each	With Mtg. Tabs	Without Mtg. Tabs	Watts
SE-802	$4.40	8	6½	250
SE-1202	4.90	12	10½	250
SE-1205	4.90	12	10½	500
SE-1405	5.15	14	12½	500
SE-1505	5.20	15¼	13¾	500
SE-1805	5.55	17⅞	16⅜	500
SE-1807	5.60	17⅞	16⅜	750
SE-1801	5.65	17⅞	16⅜	1000
SE-1905	5.65	19½	18	500
SE-1901	5.95	19½	18	1000
SE-2405	6.15	23¾	22¼	500
SE-2407	6.15	23¾	22¼	750
SE-2401	6.50	23¾	22¼	1000
SE-2501	6.60	25½	24	1000
SE-3007	7.30	30½	28	750
SE-3601	8.50	35⅞	33⅜	1500
SE-4301	9.60	42½	40	1500

Standard type has fastening tabs at each end with slotted mounting holes 5/16 inch wide by ½ inch long for bolting to supports. Heaters can be furnished without tabs at no additional cost.

When ordering specify Cat. No., Volts, Watts, with or without mounting tabs.